JVC

SERVICE MANUAL

COLOUR TELEVISION

AV-28GH1BUF, AV-28GH1SUF

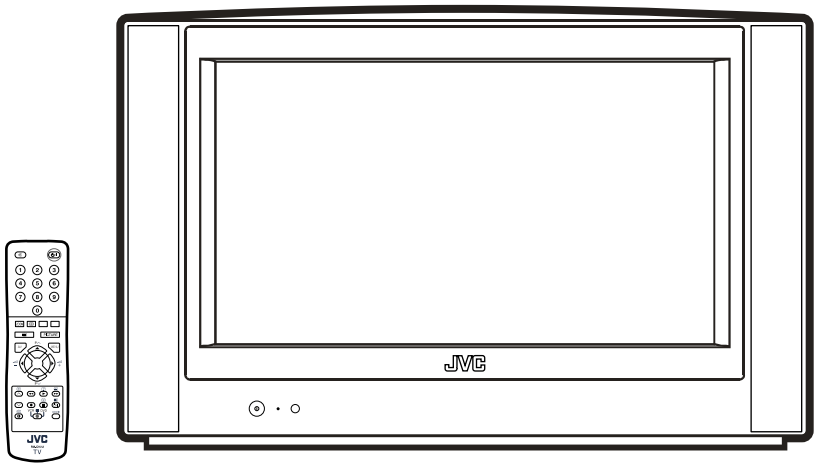


TABLE OF CONTENTS

1 PRECAUTION 1-3
2 SPECIFIC SERVICE INSTRUCTIONS 1-4
3 DISASSEMBLY 1-6
4 ADJUSTMENT 1-10
5 TROUBLESHOOTING 1-20

COPYRIGHT © 2003 VICTOR COMPANY OF JAPAN, LIMITED

No.52138
2003/9

SPECIFICATION

Items		Contents
Dimensions (W × H × D)		81cm × 51cm × 48.5cm
Mass		36kg
TV RF System		B/G, D/K, L/L'
Colour System	TV Mode	PAL / SECAM
	Video Mode	PAL / SECAM / NTSC 3.58 / NTSC 4.43
Sound System		NICAM / A2 (Germany system)
Teletext System		FLOF (Fastext) / TOP (German system)
Tuning System		Frequency synthesizer tuning system
Number of CH memory position		100 ch
Receiving Frequency	VHF Low	46.25MHz ~ 168.25MHz
	VHF High	175.25MHz ~ 463.25MHz
	UHF	471.25MHz ~ 863.25MHz
	CATV	S01-S04 & S75-S79
Intermediate Frequency	VIF	38.9MHz (B/G, D/K, L) / 33.9MHz (L')
	SIF	33.4MHz (5.5MHz:B/G) / 32.9MHz (6.0MHz:D/K) / 32.4MHz (6.5MHz:L) / 40.4MHz (6.5MHz:L')
Colour Sub Carrier Frequency		PAL (4.43MHz), SECAM (4.43MHz), NTSC (3.58MHz/4.43MHz)
Power Input		AC220V ~ AC240V, 50Hz
Power Consumption		148W(Max), 3W(Standby)
Aerial Input Terminal		75Ω unbalanced, coaxial
Picture Tube		Visible size : 66cm (Measured diagonally)
High Voltage		29kV
Speaker		Main:5.7cm × 16cm oval type × 2 / Tweeter: 8W,15W × 2
Audio Output		10W + 10W
Input	Video	1V(p-p) 75Ω
	S-Video	Y : 1V(p-p) positive
		C : 0.286V(p-p)
	Audio (L/R)	500mV(rms) (-4dBs), High impedance (RCA pin jack × 2)
Output	Video	1V(p-p) 75Ω
	Audio (L/R)	500mV(rms), Low Impedance
Input Terminal	Rear Side	EXT-1 (Video / Audio / RGB)
		EXT-2 (Video / Audio / RGB / S-VHS)
		EXT-3 (Video / Audio)
	Right Side	EXT-4 (Video / Audio)
Output Terminal	Rear Side	EXT-1 (Video / Audio)Headphone Jack (Stereo mini jack Ø3.5mm × 1)
		EXT-2 (Video / Audio)
		EXT-3 (Video / Audio)
	Right Side	Headphone Jack (Stereo mini jack O3.5mm × 1)
Remote Control Unit		VE-30021286 (RM-C1512B), (AA/R06 dry battery × 2) : AV-28GH1BUF
		VE-30021287 (RM-C1512S), (AA/R06 dry battery × 2) : AV-28GH1SUF

Design & specifications are subject to change without notice.

SECTION 1
PRECAUTION

1.1 SAFETY PRECAUTIONS

(1) The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.

(2) Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.

(3) Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (⚠) on the parts list in Service manual**. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards.

(4) **Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing.**
Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (⊥) side GND, the ISOLATED (NEUTRAL) : (⏚) side GND and EARTH : (⏚) side GND.
Don't short between the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND and never measure the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND at the same time with a measuring apparatus (oscilloscope etc.). If above note will not be kept, a fuse or any parts will be broken.

(5) If any repair has been made to the chassis, it is recommended that the B1 setting should be checked or adjusted (See B1 POWER SUPPLY check).

(6) The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.

(7) Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10kΩ 2W resistor to the anode button.

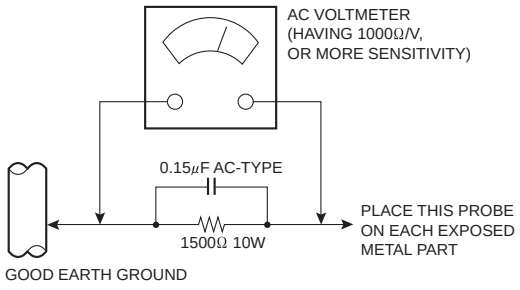
(8) When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.

(9) **Isolation Check (Safety for Electrical Shock Hazard)**
After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screw heads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

a) **Dielectric Strength Test**
The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 3000V AC (r.m.s.) for a period of one second. (. . . . Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.)
This method of test requires a test equipment not generally found in the service trade.

b) **Leakage Current Check**
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).

Alternate Check Method
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000Ω per volt or more sensitivity in the following manner. Connect a 1500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.3V AC (r.m.s.). This corresponds to 0.2mA AC (r.m.s.).



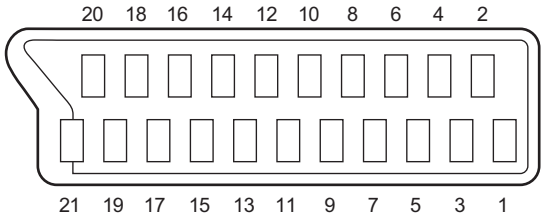
SECTION 2
SPECIFIC SERVICE INSTRUCTIONS

2.1 21-pin Euro connector (SCART) : EXT-1 / EXT-2 / EXT-3

Pin No.	Signal Designation	Matching Value	EXT-1	EXT-2	EXT-3
1	AUDIO R output	500mV(rms) (Nominal), Low impedance	Used	Used	Used
2	AUDIO R input	500mV(rms) (Nominal), High impedance	Used (R1)	Used (R2)	Used (R3)
3	AUDIO L output	500mV(rms) (Nominal), Low impedance	Used	Used	Used
4	AUDIO GND	---	Used	Used	Used
5	GND (B)	---	Used	Used	Used
6	AUDIO L input	500mV(rms) (Nominal), High impedance	Used (L1)	Used (L2)	Used (L3)
7	B input	700mV(B-W), 75 Ω	Used	Used	Not used
8	FUNCTION SW (SLOW SW)	Low : 0V-3V, High : 8V-12V, High impedance	Used	Used	Used
9	GND (G)	---	Used	Used	Used
10	SCL / T-V LINK	---	Not used	Used (SCL / TV-LINK)	Not used
11	G input	700mV(B-W), 75 Ω	Used	Used	Not used
12	SDA3	---	Not used	Not used	Not used
13	GND (R)	---	Used	Used	Used
14	GND (YS)	---	Used	Used	Used
15	R / C input	R : 700mV(B-W), 75 Ω C : 300mV$_{(P-P)}$, 75 Ω	Used (R)	Used (C2/R)	Not used
16	Ys input (FAST SW)	Low : 0V-0.4V, 75 Ω High : 1V-3V, 75 Ω	Used	Used	Not used
17	GND (VIDEO output)	---	Used	Used	Used
18	GND (VIDEO input)	---	Used	Used	Used
19	VIDEO output	1V$_{(P-P)}$ (Negative sync), 75 Ω	Used	Used	Used
20	VIDEO / Y input	1V$_{(P-P)}$ (Negative sync), 75 Ω	Used	Used	Used
21	COMMON GND	---	Used	Used	Used

(P-P= Peak to Peak, B-W= Blanking to white peak)

[Pin assignment]



2.2 FEATURES

- It is a remote controlled color television.
- 100 programs from VHF, UHF bands or cable channels can be preset.
- It can tune cable channels.
- Controlling the TV is very easy by its menu driven system.
- It has three Euroconnector sockets for external device (such as video recorder, video games, audio set, etc.)
- Side AV Input (EXT-4) available.
- Stereo sound systems (German + Nicam) are available.
- Full function Teletext (Fastext, Toptext).
- It is possible to connect headphone.
- Direct channel access.
- APS (Automatic Programming System).
- All programs can be named.
- Forward or backward automatic tuning.
- Sleep timer.
- Child Lock.
- Blue Background
- Comb Filter
- CTI
- T-V Link
- Automatic sound mute when no transmission.
- 5 minutes after the broadcasting (close down), the TV switches itself automatically to stand-by mode.
- WSS (Wide Screen Signaling)
- NTSC Playback.

2.3 MAIN DIFFERENCE LIST

Part Name	AV-28GH1BUF	AV-28GH1SUF
FRONT CABINET	VE-20127770	VE-20126050
BACK COVER	VE-20121498	VE-20111866
BACK DOOR	VE-20108124	VE-20120043
FUNCTION BUTTON	VE-20091798	VE-20096498
POWER BUTTON	VE-20111864	VE-20120046
REMOTE CONTROL UNIT	VE-30021286 (RM-C1512B)	VE-30021287 (RM-C1512S)

SECTION 3
DISASSEMBLY

3.1 DISASSEMBLY PROCEDULE

3.1.1 REMOVING THE REAR COVER

(1) Unplug the power cord.
(2) Remove the 8 screws **[A]** as shown in the Fig. 1.
(3) Remove the 4 screws **[B]**.
(4) Withdraw the REAR COVER toward you.

3.1.2 REMOVING THE BACK DOOR

- Remove the REAR COVER
  (1) Remove the 2 screws **[C]**.
  (2) Withdraw the BACK DOOR toward you.

3.1.3 REMOVING THE MAIN PWB

- Remove the REAR COVER.
- Remove the BACK DOOR.
  (1) Remove the 4 screws **[D]**.
  (2) Slightly raise the both sides of the MAIN PWB by hand and withdraw the MAIN PWB backward.

CAUTION :

If necessary, take off the wire clamp, connectors etc. Be careful enough when developing a MAIN PWB.

3.1.4 REMOVING THE FEATURE BOX PWB

- Remove the REAR COVER.
- Remove the BACK DOOR.
  (1) Disconnect the connector PL423 and PL424 on the MAIN PWB.
  (2) Raise up the both sides and disconnect the FEATURE BOX PWB.

3.1.5 REMOVING THE SIDE CONTROL PWB

- Remove the REAR COVER.
  (1) Remove the 4 screws **[E]**.
  (2) Remove the SIDE PWB.

3.1.6 REMOVING THE POWER SWITCH PWB

- Remove the REAR COVER.
  (1) Remove the 2 screws **[F]**, and remove the POWER SWITCH PWB.

3.1.7 REMOVING THE LED PWB

- Remove the REAR COVER.
- Remove the POWER SWITCH PWB.
  (1) Remove the 2 screws **[G]**, and remove the LED PWB.

3.1.8 REMOVING THE SPEAKER and TWEETER

- Remove the REAR COVER.
  (1) Remove the 4 screws **[H]**, and remove the SPEAKER.
  (2) Remove the other hand SPEAKER in the same steps.
  (3) Remove the 2 screws **[I]**, and remove the TWEETER.
  (4) Remove the other hand TWEETER in the same steps.

3.1.9 CHECKING THE PW BOARD

- To check the back side of the PW Board.
  (1) Pull out the PW Board. (Refer to REMOVING THE MAIN PWB).
  (2) Erect the PW Board vertically so that you can easily check the back side of the PW Board.

CAUTION :

- When erecting the PW Board, be careful so that there will be no contacting with other PW Board.
- Before turning on power, make sure that the wire connector is properly connected.
- When conducting a check with power supplied, be sure to confirm that the CRT EARTH WIRE (BRAIDED ASS'Y) is connected to the CRT SOCKET PW board.

3.1.10 WIRE CLAMPING AND CABLE TYING

(1) Be sure to clamp the wire.
(2) Never remove the cable tie used for tying the wires together.
Should it be inadvertently removed, be sure to tie the wires with a new cable tie.

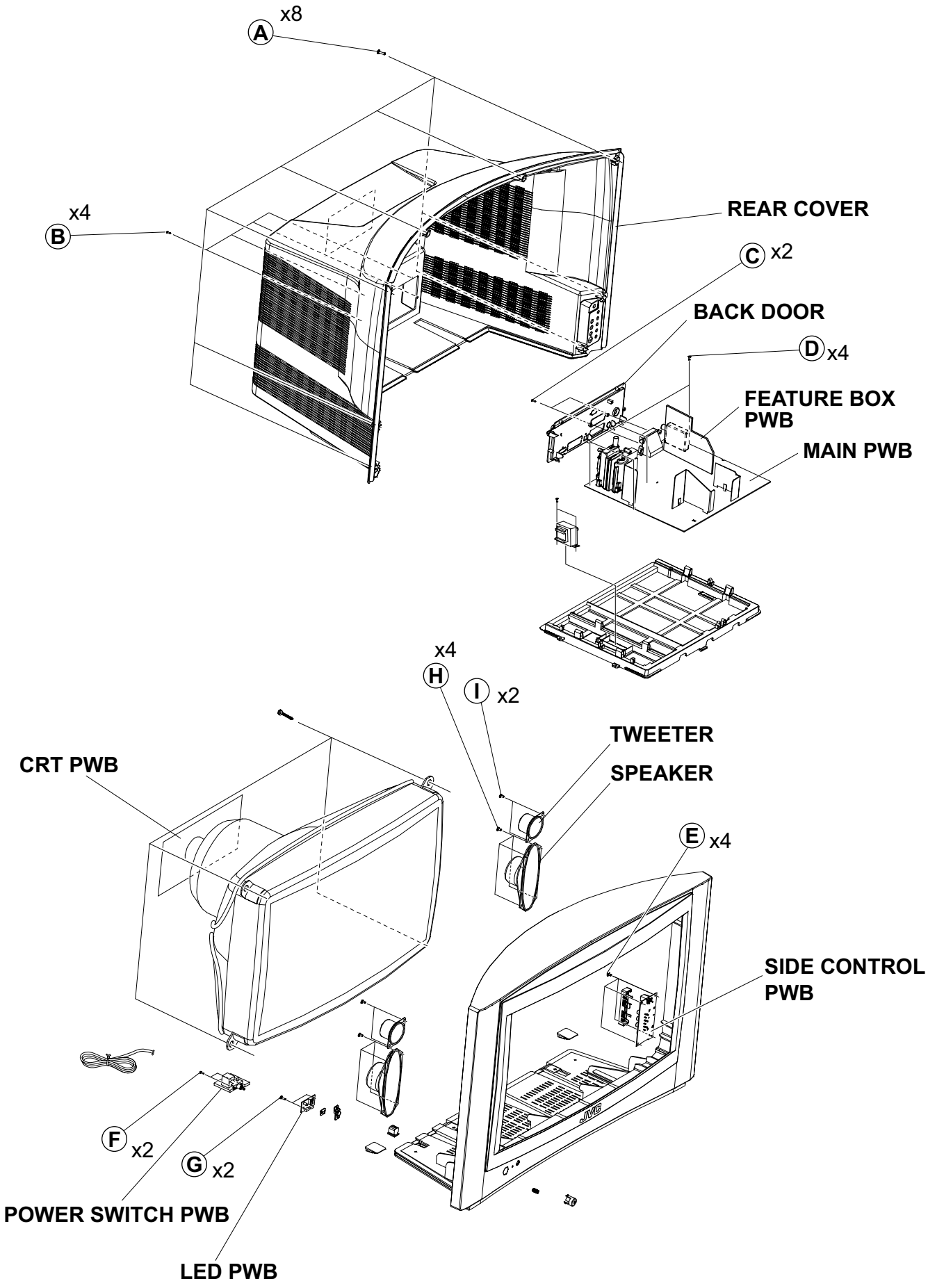

A x8
B x4
REAR COVER
C x2
BACK DOOR
D x4
FEATURE BOX PWB
MAIN PWB
H x4
I x2
TWEETER
SPEAKER
CRT PWB
E x4
SIDE CONTROL PWB
F x2
G x2
POWER SWITCH PWB
LED PWB

Fig.1

3.2 REPLACEMENT OF CHIP COMPONENT

3.2.1 CAUTIONS

(1) Avoid heating for more than 3 seconds.
(2) Do not rub the electrodes and the resist parts of the pattern.
(3) When removing a chip part, melt the solder adequately.
(4) Do not reuse a chip part after removing it.

3.2.2 SOLDERING IRON

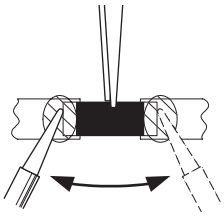
(1) Use a high insulation soldering iron with a thin pointed end of it.
(2) A 30w soldering iron is recommended for easily removing parts.

3.2.3 REPLACEMENT STEPS

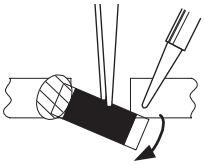
1. How to remove Chip parts

[Resistors, capacitors, etc.]

(1) As shown in the figure, push the part with tweezers and alternately melt the solder at each end.



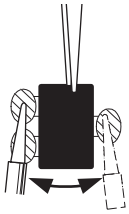
(2) Shift with the tweezers and remove the chip part.



[Transistors, diodes, variable resistors, etc.]

(1) Apply extra solder to each lead.

(2) As shown in the figure, push the part with tweezers and alternately melt the solder at each lead. Shift and remove the chip part.



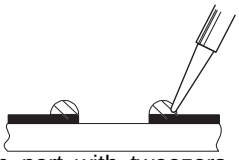
NOTE :

After removing the part, remove remaining solder from the pattern.

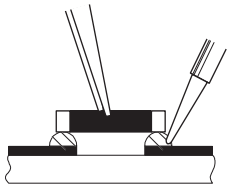
2. How to install Chip parts

[Resistors, capacitors, etc.]

(1) Apply solder to the pattern as indicated in the figure.

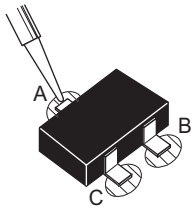


(2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

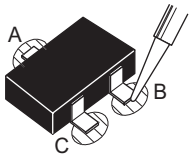


[Transistors, diodes, variable resistors, etc.]

(1) Apply solder to the pattern as indicated in the figure.
(2) Grasp the chip part with tweezers and place it on the solder.
(3) First solder lead **A** as indicated in the figure.



(4) Then solder leads **B** and **C**.



3.3 SETTING OF THE LAST MEMORY FOR SHIPMENT

3.3.1 USER SETTING VALUES

<table>
<tr><th>Setting Item</th><th>Setting Value</th><th>Setting Item</th><th>Setting Value</th></tr>
<tr><td colspan="2">SOUND MENU</td><td colspan="2">FEATURE MENU</td></tr>
<tr><td>BALANCE</td><td>CENTER</td><td>SLEEP TIMER</td><td>OFF</td></tr>
<tr><td>BASS</td><td>CENTER</td><td>CHILD LOCK</td><td>OFF</td></tr>
<tr><td>TREBLE</td><td>CENTER</td><td colspan="2" rowspan="2"></td></tr>
<tr><td>HYPER SOUND</td><td>OFF</td></tr>
<tr><td colspan="2">PICTURE MENU</td><td colspan="2">INSTALL</td></tr>
<tr><td>BRIGHTNESS</td><td rowspan="8">These adjust are automatically restored when APS bit in Service menu is set.
The procedure for setting APS bit is described bellow.</td><td>LANGUAGE</td><td>ENGLISH</td></tr>
<tr><td>CONTRAST</td><td>COUNTRY</td><td>Other</td></tr>
<tr><td>COLOUR</td><td>EXT-2 OUTPUT</td><td>TV</td></tr>
<tr><td>SHARPNESS</td><td colspan="2" rowspan="5"></td></tr>
<tr><td>COLOUR TEMP</td></tr>
<tr><td>ZOOM</td></tr>
<tr><td>HUE (only NTSC)</td></tr>
</table>

3.3.2 SETTING APS BIT IN SERVICE MENU

(1) Enter service menu in TV mode by pressing [INFORMATION] and [MUTING] keys simultaneously. Service Menu will appear.
(2) Select VIDEO by pressing [GREEN] key on the remote control unit.
(3) Select APS items by pressing the [▲/▼] keys on the remote control unit.
(4) Change the value to [ON] by pressing [◀ / ▶] keys on the remote control unit.
(5) Store the change by pressing [INFORMATION] key.
(6) Press [MENU] key on the remote control unit to exit service mode.

SECTION 4
ADJUSTMENT

4.1 ADJUSTMENT PREPARATION

(1) You can make the necessary adjustments for this unit with either the Remote Control Unit or with the adjustment tools and parts as given below.
(2) Adjustment with the Remote Control Unit is made on the basis of the initial setting values, however, the new setting values which set the screen to its optimum condition may differ from the initial settings.
(3) Make sure that AC power is turned on correctly.
(4) Turn on the power for set and test equipment before use, and start the adjustment procedures after waiting at least 30 minutes.
(5) Unless otherwise specified, prepare the most suitable reception or input signal for adjustment.
(6) Never touch any adjustment parts which are not specified in the list for this adjustment - variable resistors, transformers, condensers, etc.
(7) Presetting before adjustment.
Unless otherwise specified in the adjustment instructions, preset the following functions with the remote control unit:

Setting Item	Setting value
BRIGHTNESS	CENTER
CONTRAST	
COLOUR	
SHARPNESS	
COLOUR TEMP	
ZOOM	FULL

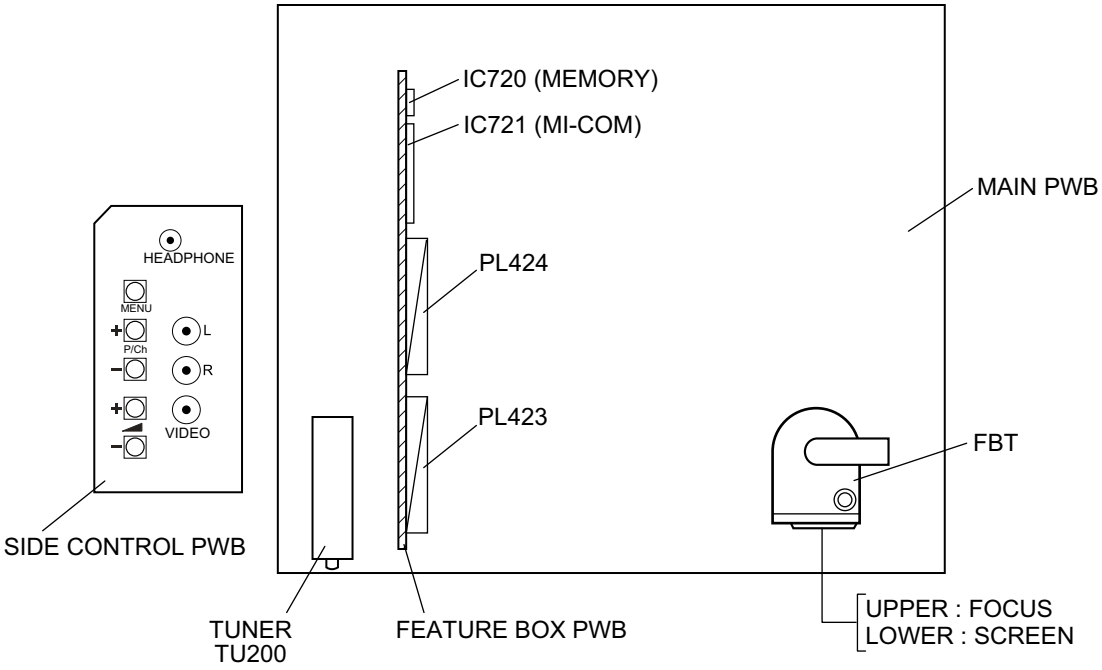
4.2 MEASURING EQUIPMENT

(1) DC voltmeter (or digital voltmeter)
(2) Signal generator (Pattern generator) : [PAL / SECAM / NTSC]
(3) Remote control unit

4.3 ADJUSTMENT ITEM

- SCREEN ADJUSTMENT
- DEFLECTION CIRCUIT ADJUSTMENT
- GEOMETRY MENU ADJUSTMENT
- WHITE BALANCE ADJUSTMENT

4.4 ADJUSTMENT LOCATIONS



4.5 BASIC OPERATION OF SERVICE MENU

4.5.1 HOW TO ENTER THE SERVICE MENU

(1) Press the [INFORMATION] key and [MUTING] key simultaneously, and the SERVICE MENU screen (Fig.1) will be displayed.

SERVICE MENU

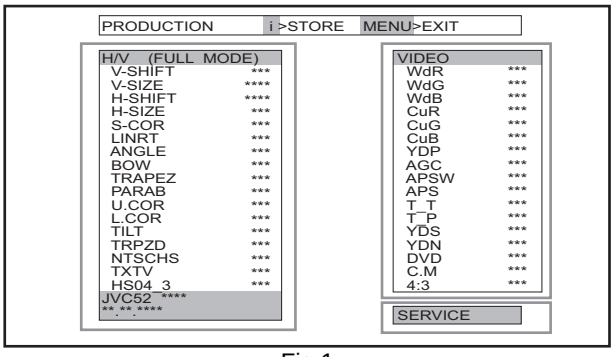


Fig.1

(2) While the SERVICE MENU screen is displayed, press the [BLUE] key for access to the SERVICEMENU 2 (Fig.2).

SERVICE MENU 2

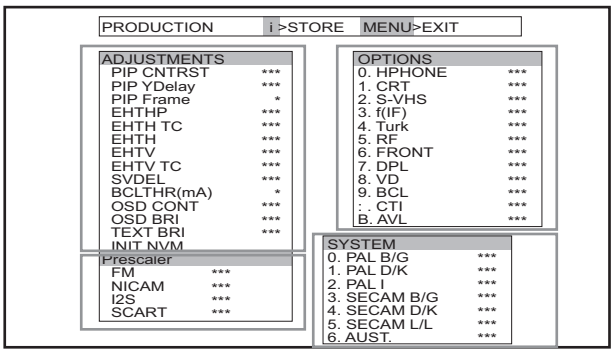
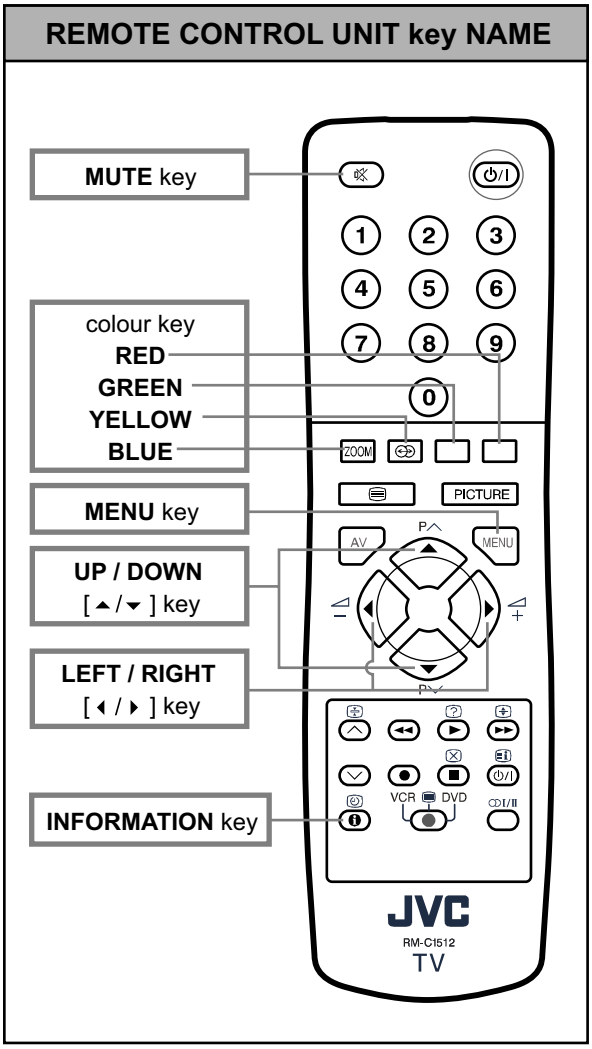


Fig.2



4.5.2 SELECTION OF ADJUSTMENT ITEMS

(1) Enter the SERVICE MENU
(2) Press the [COLOUR (RED,GREEN,YELLOW or BLUE)] key and select the service menu section. (refer to next page.)
(3) Press the FUNCTION [5]/[6] key and select the ADJUSTMENT ITEM.
(4) Press the FUNCTION [3]/[4] key and set the SETTING VALUE.
(5) Press the [INFORMATION] key to STORE.

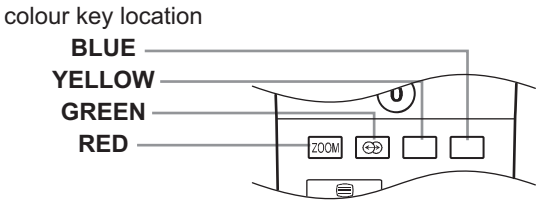
4.5.3 HOW TO EXIT SERVICE MODE

(1) Press the [MENU] key.

4.5.4 COLOUR KEY FUNCTION AND SCREEN SIDPLAY

Colour key function in the SERVICE MENU

colour key	press time	select menu
RED	onece	H/V
	twice	---
GREEN	onece	VIDEO
	twice	FACTRY SETTINGS
YELLOW	onece	---
	twice	PICTURE MODE SETTINGS
BLUE	onece	SERVICE (SERVICE MENU 2)
	twice	---



SERVICE MENU

RED key
select **H/V**

GREEN key
select **VIDEO**

GREEN key twice
access **FACTRY SETTINGS**

BLUE key
select **SERVICE**

YELLOW key twice
access **PICTURE MODE SETTINGS**

Do Not Adjust

SERVICE MENU 2

RED key
select **ADJUSTMENT**

GREEN key
select **Prescaler**

BLUE key
select **OPTIONS**

YELLOW key
select **SYSTEM**

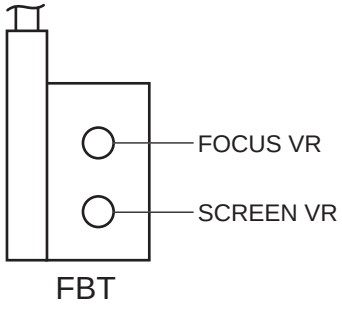
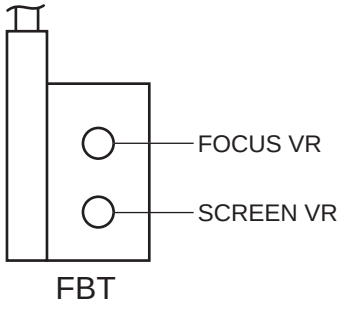
PICTURE MODE SETTINGS

FACTORY SETTINGS

ZOOM (RED) key
select **picture modes**

4.6 ADJUSTMENT PROCEDURE

4.6.1 FOCUS / SCREEN ADJUSTMENT

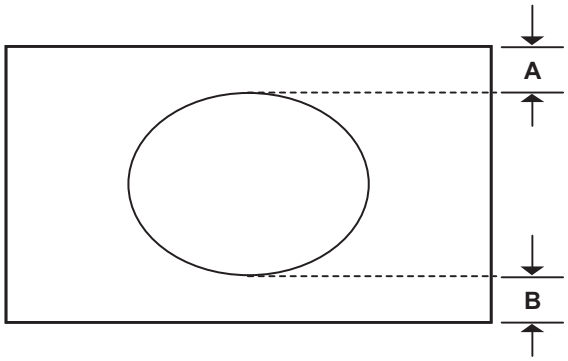
Item	Measuring instrument	Test point	Adjustment part	Description
FOCUS adjustment	Signal generator Remote control unit		FOCUS VR [On the FBT]	(1) Receive a cross-hatch signal. (2) Adjust FOCUS VR on the FBT as thin as possible. 
SCREEN adjustment	Signal generator Remote control unit	1pin (GND) RGB cathodes [CRT PWB]	SCREEN VR [On the FBT]	(1) Receive a colour-bar signal. (2) Ground pin of probe will be connected to 1pin (GND) of the CRT socket. (3) 1/100 oscilloscope probe to RGB cathodes on CRT PWB. (4) Adjust all control functions (brightness, colour and contrast) to minimum settings. (5) Adjust the SCREEN VR until acthode voltage becomes 150V. 

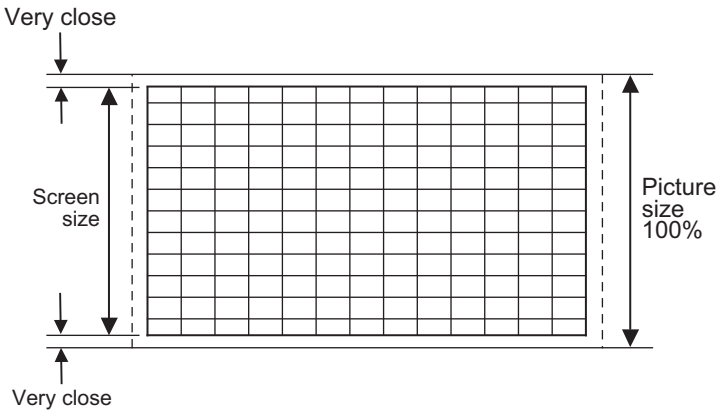
4.6.2 AGC ADJUSTMENT

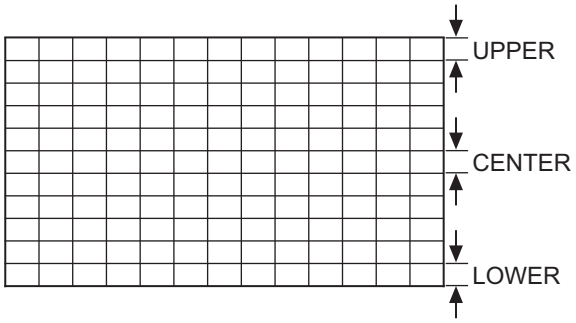
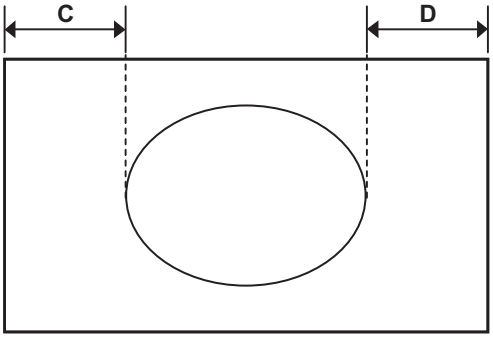
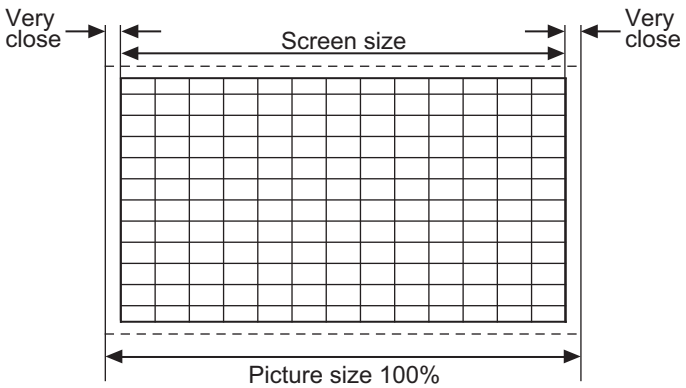
Item	Measuring instrument	Test point	Adjustment part	Description
AGC adjustment	Signal generator Remote control unit Volt meter		AGC	(1) Receive a PAL BG signal at 60dBmV RF signal level. (2) Enter the SERVICE MENU. (3) Press the [GREEN] key, then enter the VIDEO adjustment group. (4) Select AGC. (5) Adjust AGC by pressing till voltage at pin 1 of TUNER is equal to 3.0V. (6) Press the [INFORMATION] key and memorize the set value.

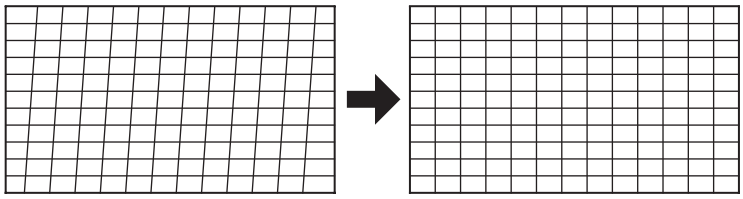
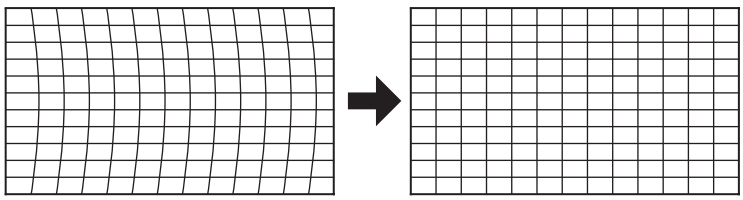
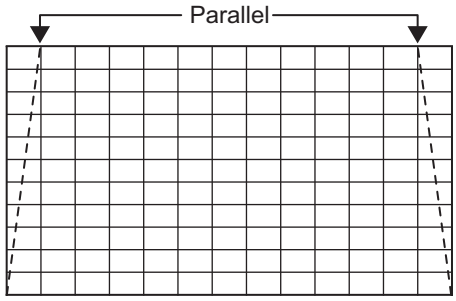
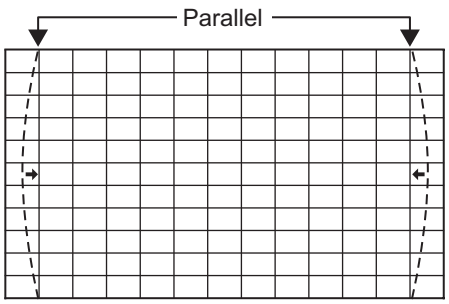
4.6.3 DEFLECTION CIRCUIT ADJUSTMENT

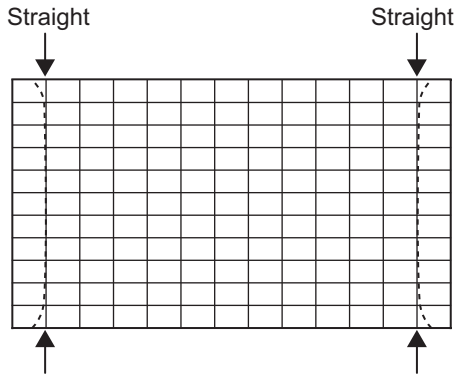
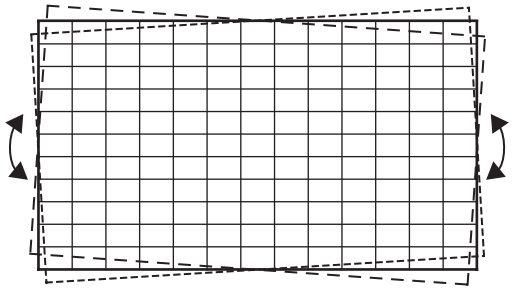
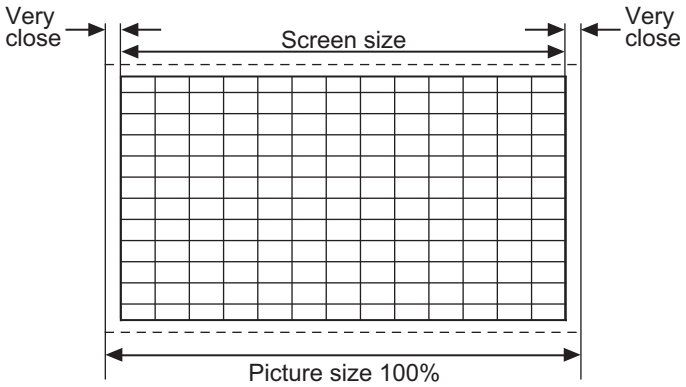
<table>
<tr><th>Item</th><th>Measuring instrument</th><th>Test point</th><th>Adjustment part</th><th>Description</th></tr>
<tr><td>VERTICAL SHIFT adjustment</td><td>Signal generator

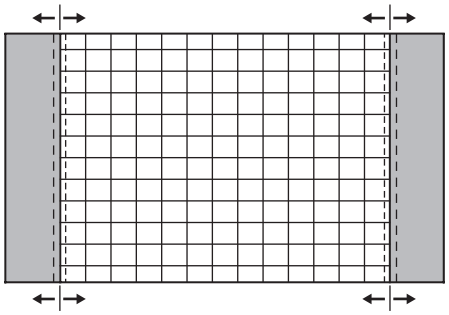
Remote control unit</td><td></td><td>V-SHIFT</td><td rowspan="2">(1) Receive a circle pattern signal.
(2) Enter the SERVICE MENU.
(3) Press the [RED] key, then enter the H/V adjustment group.
(4) Select V-SHIFT.
(5) Adjust V-SHIFT to make A=B.
(6) Check and readjust V-SHIFT item if the adjustment becomes improper after some other geometric adjustments are done.
(7) Press the [INFORMATION] key and memorize the set value.</td></tr>
<tr><td colspan="4"> 
</td></tr>
<tr><td>VERTICAL SIZE adjustment</td><td>Signal generator

Remote control unit</td><td></td><td>V-SIZE</td><td rowspan="2">(1) Receive a cross-hatch signal.
(2) Enter the SERVICE MENU.
(3) Press the [RED] key, then enter the H/V adjustment group.
(4) Select V-SIZE.
(5) Adjust V-SIZE until horizontal black lines on both the upper and lower part of the cross-hatch pattern become very closeted the upper and lower horizontal sides of picture size and nearly about to disappear.
(6) Check and readjust V-SIZE item if the adjustment becomes improper after some other geometric adjustments are done.
(7) Press the [INFORMATION] key and memorize the set value.</td></tr>
<tr><td colspan="4"> 
</td></tr>
</table>

Item	Measuring instrument	Test point	Adjustment part	Description
VERTICAL S-CORRECTION & LINEARITY adjustment	Signal generator Remote control unit		S-COR LINRT	(1) Receive a cross-hatch signal. (2) Enter the SERVICE MENU. (3) Press the [RED] key, then enter the H/V adjustment group. (4) Select S-COR. (5) Adjust S-COR till the size of squares on both the upper and lower part of cross-hatch pattern become equal to the squares laying on the vertical center of the cross-hatch pattern. (6) Check and readjust S-COR item if the adjustment becomes improper after some other geometric adjustments are done. (7) Press the [INFORMATION] key and memorize the set value. (8) Select LINRT. (9) Adjust LINRT till all the size of squares of the cross-hatch pattern become in equal size from the top of the screen to its bottom of the whole screen. (10) Check and readjust LINRT item if the adjustment becomes improper after some other geometric adjustments (especially after than S-COR adjustment) are done. (11) Press the [INFORMATION] key and memorize the set value.
				
HORIZONTAL SHIFT adjustment	Signal generator Remote control unit		H-SHIFT	(1) Receive a circle pattern signal. (2) Enter the SERVICE MENU. (3) Press the [RED] key, then enter the H/V adjustment group. (4) Select H-SHIFT. (5) Adjust H-SHIFT to make C=D. (6) Check and readjust H-SHIFT item if the adjustment becomes improper after some other geometric adjustments are done. (7) Press the [INFORMATION] key and memorize the set value.
				
HORIZONTAL SIZE adjustment	Signal generator Remote control unit		H-SIZE	(1) Receive a cross-hatch signal. (2) Enter the SERVICE MENU. (3) Press the [RED] key, then enter the H/V adjustment group. (4) Select H-SIZE. (5) Adjust H-SIZE until vertical lines on both the left and right part of the cross-hatch will be visible nor screen will be so wide. (6) Check and readjust H-SIZE item if the adjustment becomes improper after some other geometric adjustments are done. (7) Press the [INFORMATION] key and memorize the set value.
				

Item	Measuring instrument	Test point	Adjustment part	Description
ANGLE adjustment	Signal generator Remote control unit		ANGLE	(1) Receive a cross-hatch signal. (2) Enter the SERVICE MENU. (3) Press the [RED] key, then enter the H/V adjustment group. (4) Select ANGLE. (5) Adjust ANGLE till the vertical lines of the cross-hatch pattern become straight. (6) Check and readjust ANGLE item if the adjustment becomes improper after some other geometric adjustments are done. (7) Press the [INFORMATION] key and memorize the set value.
				
BOW adjustment	Signal generator Remote control unit		BOW	(1) Receive a cross-hatch signal. (2) Enter the SERVICE MENU. (3) Press the [RED] key, then enter the H/V adjustment group. (4) Select BOW. (5) Adjust BOW till the vertical lines become straight. (6) Check and readjust BOW item if the adjustment becomes improper after some other geometric adjustments are done. (7) Press the [INFORMATION] key and memorize the set value. **NOTE:** In case where there is a bow-shaped distortion of images on the screen. (Figure)
				
TRAPEZIUM adjustment	Signal generator Remote control unit		TRAPEZ	(1) Receive a cross-hatch signal. (2) Enter the SERVICE MENU. (3) Press the [RED] key, then enter the H/V adjustment group. (4) Select TRAPEZ. (5) Adjust TRAPEZ till vertical lines, especially lines at the sides of the picture frame become parallel to the both sides of picture tubes as close as possible. (6) Check and readjust TRAPEZ item if the adjustment becomes improper after some other geometric adjustments are done. (7) Press the [INFORMATION] key and memorize the set value.
				
SIDE PIN adjustment	Signal generator Remote control unit		PARAB	(1) Receive a cross-hatch signal. (2) Enter the SERVICE MENU. (3) Press the [RED] key, then enter the H/V adjustment group. (4) Select PARAB. (5) Adjust PARAB till vertical lines close to the both sides of the picture frame become parallel to vertical sides of picture tube without any bending to left or to right side of the screen. (6) Check and readjust PARAB item if the adjustment becomes improper after some other geometric adjustments are done. (7) Press the [INFORMATION] key and memorize the set value.
				

Item	Measuring instrument	Test point	Adjustment part	Description
CORNER adjustment	Signal generator Remote control unit		U.COR L.COR	(1) Receive a cross-hatch signal. (2) Enter the SERVICE MENU. (3) Press the [RED] key, then enter the H/V adjustment group. (4) Select U.COR. (5) Adjust U.COR till vertical lines at the upper corners of the picture frame become vertical and parallel to vertical corner sides of picture tube. (6) Check and readjust U.COR item if the adjustment becomes improper after some other geometric adjustments are done. (7) Select L.COR. (8) Adjust L.COR till vertical lines at the lower corners of the picture frame become vertical and parallel to vertical corner sides of picture tube. (9) Check and readjust L.COR item if the adjustment becomes improper after some other geometric adjustments are done. (10) Press the [INFORMATION] key and memorize the set value.
				
ROTATION adjustment	Signal generator Remote control unit		TILT	(1) Receive a cross-hatch signal. (2) Enter the SERVICE MENU. (3) Press the [RED] key, then enter the H/V adjustment group. (4) Select TILT. (5) Adjust TILT to rotate the complete master clock-wise and counter clock-wise depending on the CRT. (6) Check and readjust TRAPEZ item if the adjustment becomes improper after some other geometric adjustments are done. (7) Press the [INFORMATION] key and memorize the set value.
				
NTSC HORIZONTAL SIZE adjustment	Signal generator Remote control unit		NTSCHS	(1) Receive a NTSC cross-hatch signal. (2) Enter the SERVICE MENU. (3) Press the [RED] key, then enter the H/V adjustment group. (4) Select NTSCHS. (5) Adjust NTSCHS till vertical lines on both the left and right part of the cross-hatch will be visible nor screen will be so wide. (6) Check and readjust TRAPEZ item if the adjustment becomes improper after some other geometric adjustments are done. (7) Press the [INFORMATION] key and memorize the set value.
				

Item	Measuring instrument	Test point	Adjustment part	Description
TELETEXT SCREEN adjustment	Signal generator Remote control unit		TXTV	(1) Receive a cross-hatch signal. (2) Enter the SERVICE MENU. (3) Press the [RED] key, then enter the H/V adjustment group. (4) Select TXTV. (5) Adjust TXTV to adjust the proper vertical size of Teletext screen. (6) Check and readjust TRAPEZ item if the adjustment becomes improper after some other geometric adjustments are done. (7) Press the [INFORMATION] key and memorize the set value.
4:3 TUBE adjustment	Signal generator Remote control unit		HS04_3	(1) Receive a cross-hatch signal. (2) Enter the SERVICE MENU. (3) Press the [RED] key, then enter the H/V adjustment group. (4) Select HS04_3. (5) Adjust HS04_3 to adjust the proper horizontal size of 4:3 tube. (6) Press the [INFORMATION] key and memorize the set value.
				

4.6.4 VIDEO CIRCUIT

Item	Measuring instrument	Test point	Adjustment part	Description
WHITE BALANCE adjustment	Signal generator Remote control unit		WdR WdG WdB	(1) Receive a black & white signal. (2) Enter the SERVICE MENU. (3) Press the [GREEN] key, then enter the VIDEO adjustment group. (4) Select WdR, WdG and WdB respectively. (5) Adjust WdR, WdG and WdB respectively, until the white part turns to pure white without any other colour. (6) Press the [INFORMATION] key and memorize the set value.
COLOUR CUTOFF LEVEL adjustment	Signal generator Remote control unit		CuR CuG CuB	(1) Receive a cross-hatch signal. (2) Enter the SERVICE MENU. (3) Press the [GREEN] key, then enter the VIDEO adjustment group. (4) Select CuR, CuG and CuB respectively. (5) Adjust CuR, CuG and CUB respectively, and set the values of these items as 64 (contrast). (6) Press the [INFORMATION] key and memorize the set value.
PAL Y DELAY adjustment	Signal generator Remote control unit		YDP	(1) Receive a PAL colour bar signal. (2) Enter the SERVICE MENU. (3) Press the [GREEN] key, then enter the VIDEO adjustment group. (4) Select YDP. (5) Adjust YDP till the colour transients on the colour bar pattern becomes as sharper and possible as colours between transients do not mix with each other. (6) Press the [INFORMATION] key and memorize the set value.
SECAM Y DELAY adjustment	Signal generator Remote control unit		YDS	(1) Receive a SECAM colour bar signal. (2) Enter the SERVICE MENU. (3) Press the [GREEN] key, then enter the VIDEO adjustment group. (4) Select YDS. (5) Adjust YDS by pressing till the colour transients on the colour bar pattern becomes as sharper and possible as colouers between transients do not mix with each other. (6) Press the [INFORMATION] key and memorize the set value.
NTSC Y DELAY adjustment	Signal generator Remote control unit		YDN	(1) Receive a NTSC colour bar signal from an external source (e.g. FRONT AV : EXT 4). (2) Enter the SERVICE MENU. (3) Press the [GREEN] key, then enter the VIDEO adjustment group. (4) Select YDN. (5) Adjust YDN by pressing till the colour transients on the colour bar pattern becomes as sharper and possible as colouers between transients do not mix with each other. (6) Press the [INFORMATION] key and memorize the set value.

SECTION 5
TROUBLESHOOTING

This service manual does not describe TROUBLESHOOTING.

JVC

VICTOR COMPANY OF JAPAN, LIMITED
AV & MULTIMEDIA COMPANY VIDEO DISPLAY CATEGORY 12, 3-chome, Moriya-cho, kanagawa-ku, Yokohama, kanagawa-prefecture, 221-8528, Japan

(No.52138)

Printed in Japan
WPC

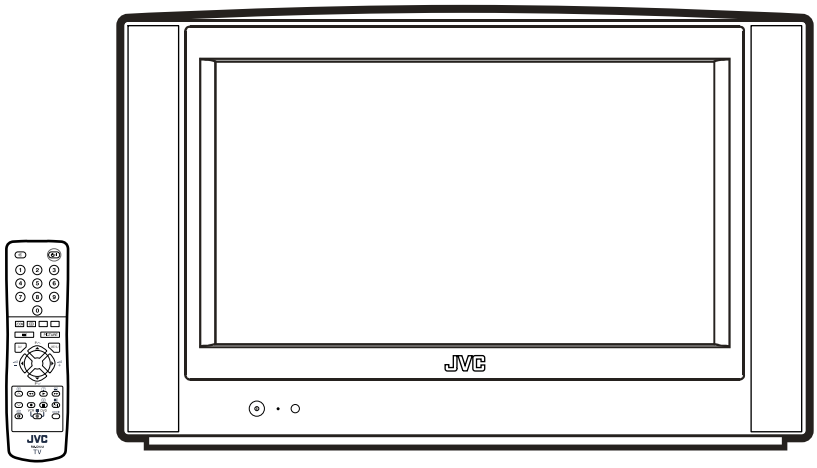
JVC

SCHEMATIC DIAGRAMS

COLOUR TELEVISION

AV-28GH1BUF, AV-28GH1SUF

CD-ROM No.SML200309



COPYRIGHT © 2003 VICTOR COMPANY OF JAPAN, LIMITED

No.52138
2003/9

AV-28GH1BUF
AV-28GH1SUF

STANDARD CIRCUIT DIAGRAM

■ NOTE ON USING CIRCUIT DIAGRAMS

1.SAFETY

The components identified by the ⚠symbol and shading are critical for safety. For continued safety replace safety critical components only with manufactures recommended parts.

2.SPECIFIED VOLTAGE AND WAVEFORM VALUES

The voltage and waveform values have been measured under the following conditions.

(1)Input signal	: Colour bar signal
(2)Setting positions of each knob/button and variable resistor	: Original setting position when shipped
(3)Internal resistance of tester	:DC 20kΩ/V
(4)Oscilloscope sweeping time	:H ⇒ 20μS/div
	:V ⇒ 5mS/div
	:Others ⇒ Sweeping time is specified
(5)Voltage values	:All DC voltage values

∗ Since the voltage values of signal circuit vary to some extent according to adjustments, use them as reference values.

3.INDICATIONS ON THE CIRCUIT DIAGRAM

(1)Resistors

● Resistance value

No unit	:[Ω]
K	:[K Ω]
M	:[M Ω]

● Type

No indication	:Carbon resistor
OMR	:Oxide metal film resistor
MFR	:Metal film resistor
MPR	:Metal plate resistor
UNFR	:Uninflammable resistor
FR	:Fusible resistor

∗ Composition resistor 1/2 [W] is specified as 1/2S or Comp.

(2)Capacitors

● Capacitance value

1 or higher	:[pF]
less than 1	:[μF]

● Withstand voltage

No indication	:DC50[V]
Others	:DC withstand voltage [V]
AC indicated	:AC withstand voltage [V]

∗ Electrolytic Capacitors

47/50[Example]:Capacitance value [μF]/withstand voltage[V]

● Type

No indication	:Ceramic capacitor
MM	:Metalized mylar capacitor
PP	:Polypropylene capacitor
MPP	:Metalized polypropylene capacitor
MF	:Metalized film capacitor
TF	:Thin film capacitor
BP	:Bipolar electrolytic capacitor
TAN	:Tantalum capacitor

(3)Coils

No unit	:[μH]
Others	:As specified

4.NOTE FOR REPAIRING SERVICE

This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE side GND and the ISOLATED(NEUTRAL) side GND.Therefore, care must be taken for the following points.

(1)Do not touch the LIVE side GND or the LIVE side GND and the ISOLATED(NEUTRAL) side GND simultaneously. If the above caution is not respected, an electric shock may be caused. Therefore, make sure that the power cord is surely removed from the receptacle when, for example, the chassis is pulled out.

(2)Do not short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or never measure with a measuring apparatus measure with a measuring apparatus (oscilloscope, etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND at the same time. If the above precaution is not respected , a fuse or any parts will be broken.

◇ **Since the circuit diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.**

NOTE

◇ **Due improvement in performance, some part numbers show in the circuit diagram may not agree with those indicated in the part list.**
When ordering parts, please use the numbers that appear in the Parts List.

Sep. 2003 No. 52138

CONTENTS

SEMICONDUCTOR SHAPES ---------- **2-2**

BLOCK DIAGRAM ---------- **2-3**

CIRCUIT DIAGRAMS

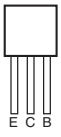
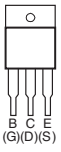
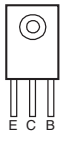
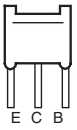
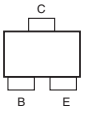
MAIN PWB CIRCUIT DIAGRAM ---------- **2-5**
FEATUREBOX PWB CIRCUIT DIAGRAM ---------- **2-13**
CRT SOCKET PWB CIRCUIT DIAGRAM ---------- **2-21**
SIDE CONTROL PWB CIRCUIT DIAGRAM ---------- **2-23**
LED PWB CIRCUIT DIAGRAM ---------- **2-25**
SWITCH PWB CIRCUIT DIAGRAM ---------- **2-26**

PATTERN DIAGRAMS

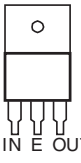
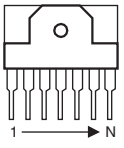
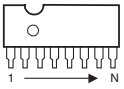
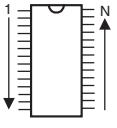
MAIN PWB PATTERN ---------- **2-27**
FEATUREBOX PWB PATTERN ---------- **2-29**
CRT SOCKET PWB PATTERN ---------- **2-31**
SIDE CONTROL PWB PATTERN ---------- **2-32**
LED PWB PATTERN ---------- **2-33**
SWITCH PWB PATTERN ---------- **2-34**

SEMICONDUCTOR SHAPES

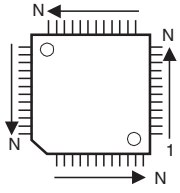
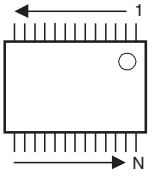
TRANSISTOR

BOTTOM VIEW	FRONT VIEW				TOP VIEW
					CHIP TR 

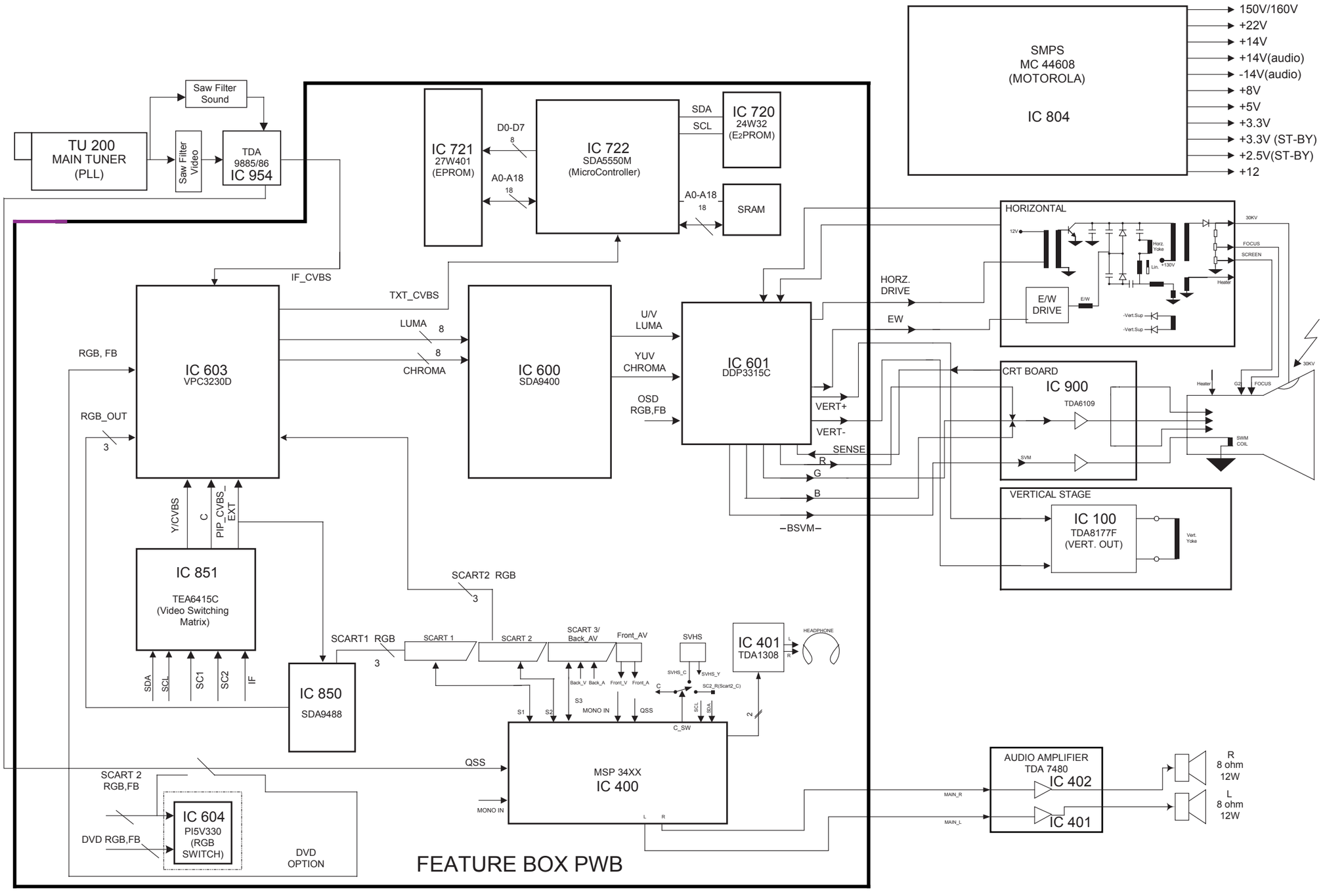
IC

BOTTOM VIEW	FRONT VIEW			TOP VIEW
				

CHIP IC

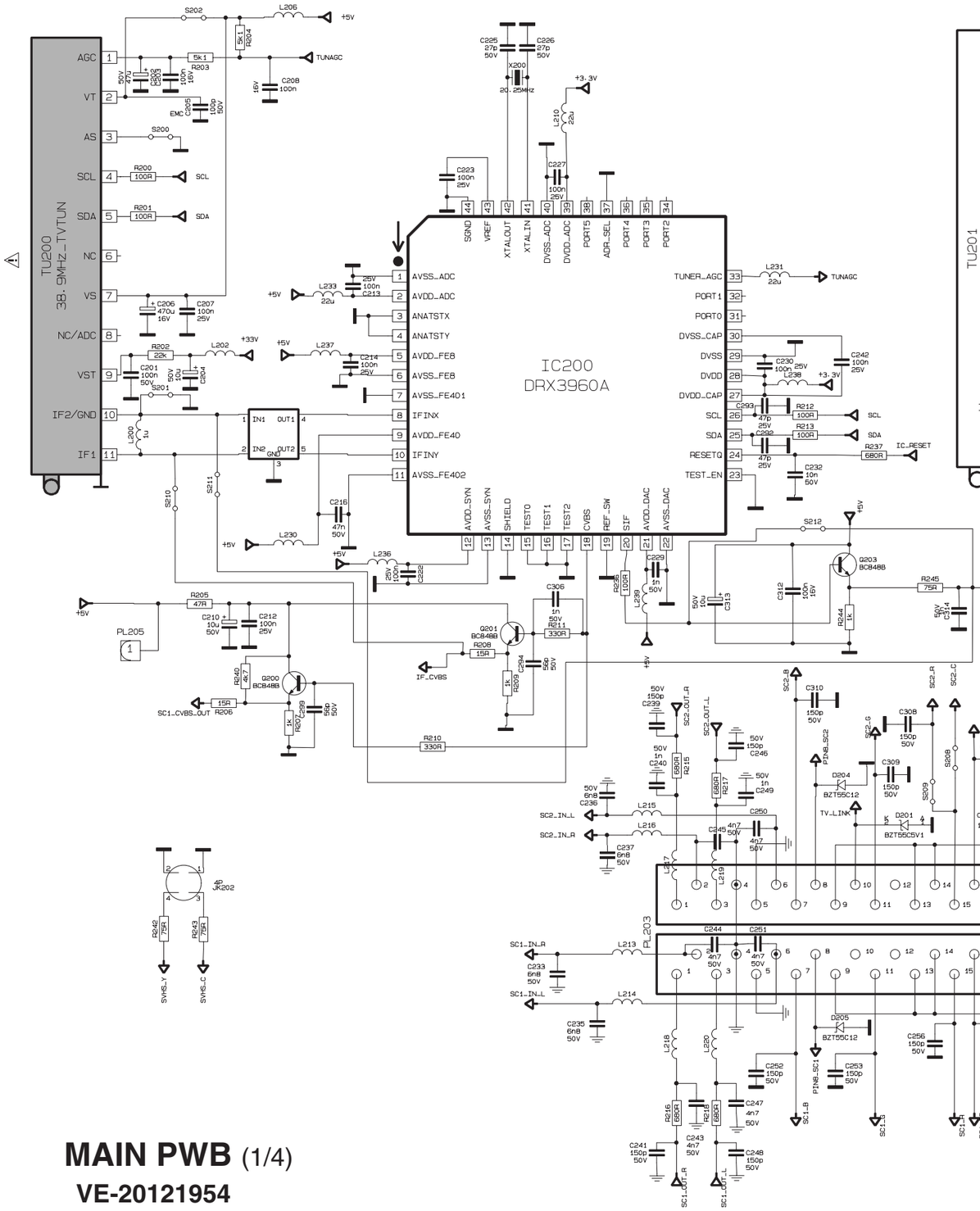
TOP VIEW		
		

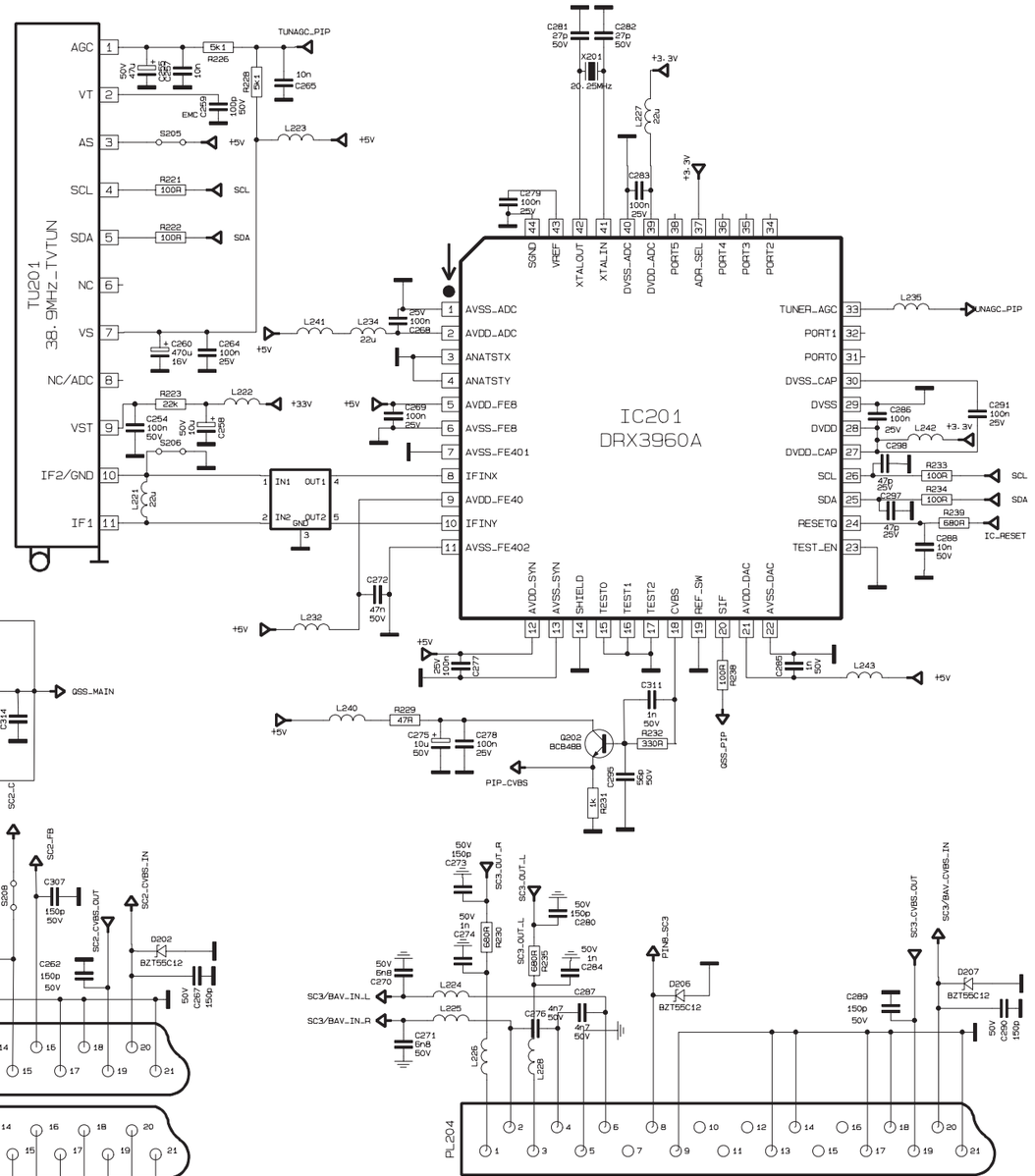
BLOCK DIAGRAM



AV-28GH1BUF
AV-28GH1SUF

CIRCUIT DIAGRAMS *MAIN PWB CIRCUIT DIAGRAM [1/4]*

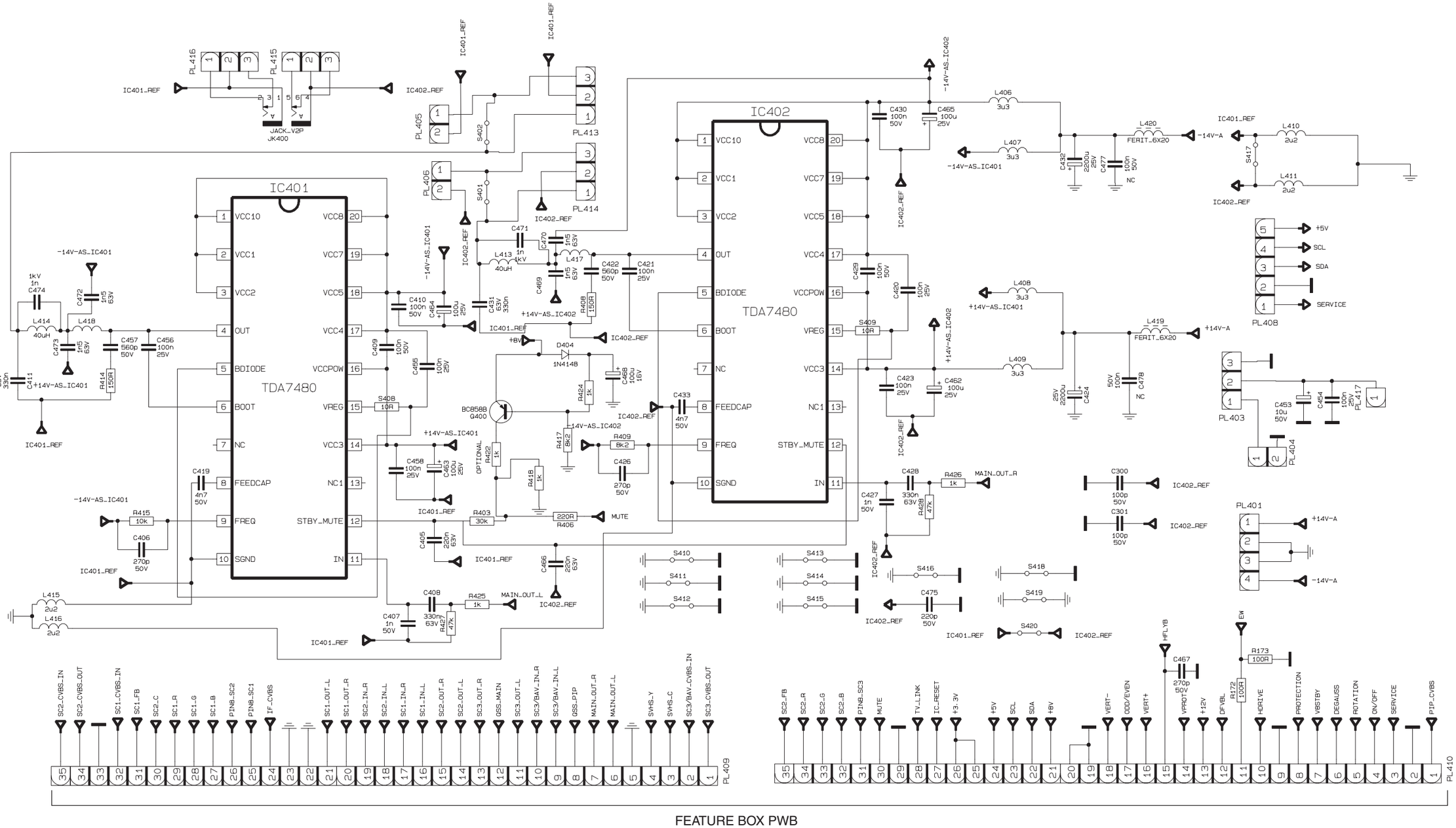




MAIN PWB (1/4)

VE-20121954

MAIN PWB CIRCUIT DIAGRAM [2/4]

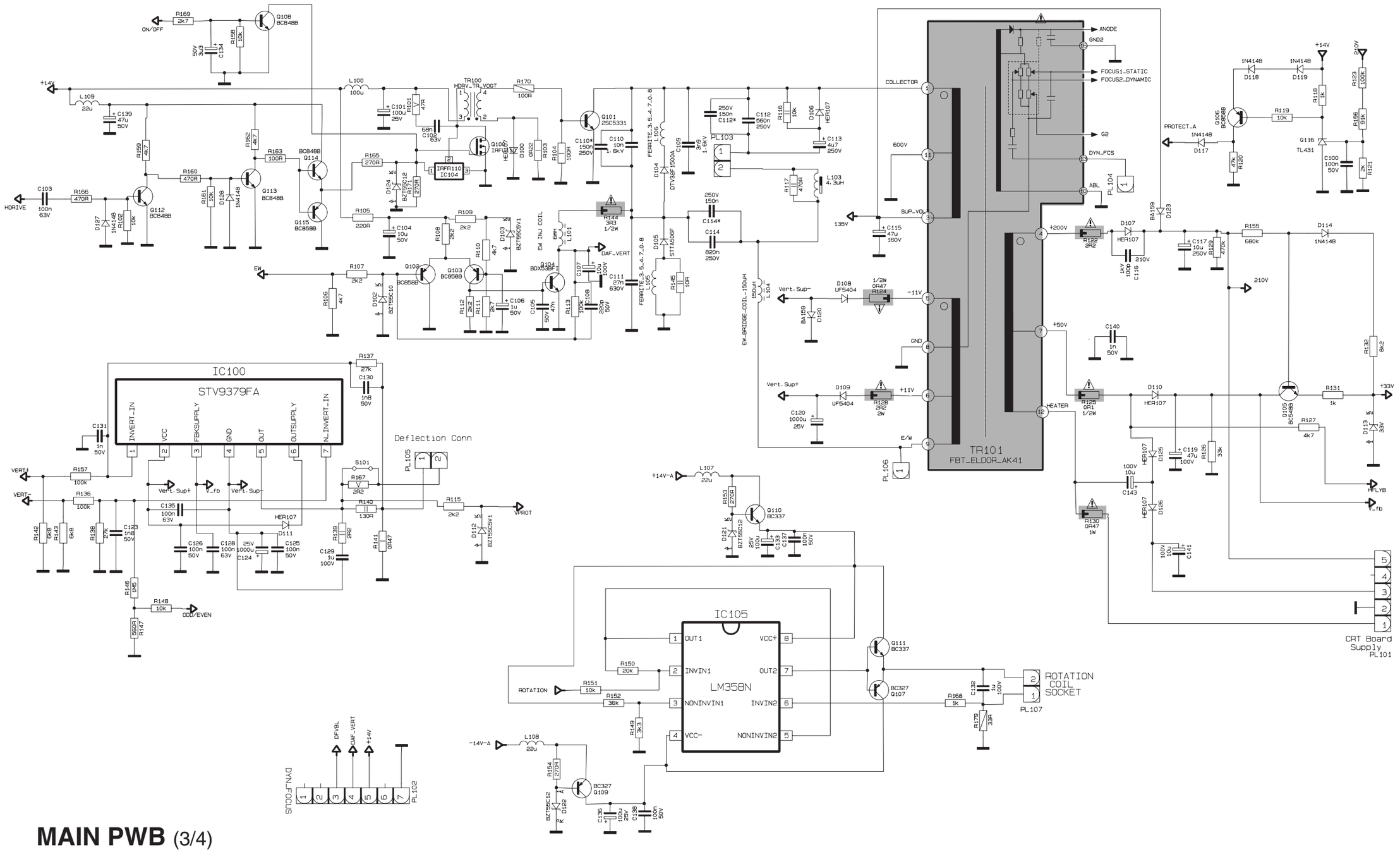


MAIN PWB (2/4)

VE-20121954

AV-28GH1BUF
AV-28GH1SUF

MAIN PWB CIRCUIT DIAGRAM [3/4]

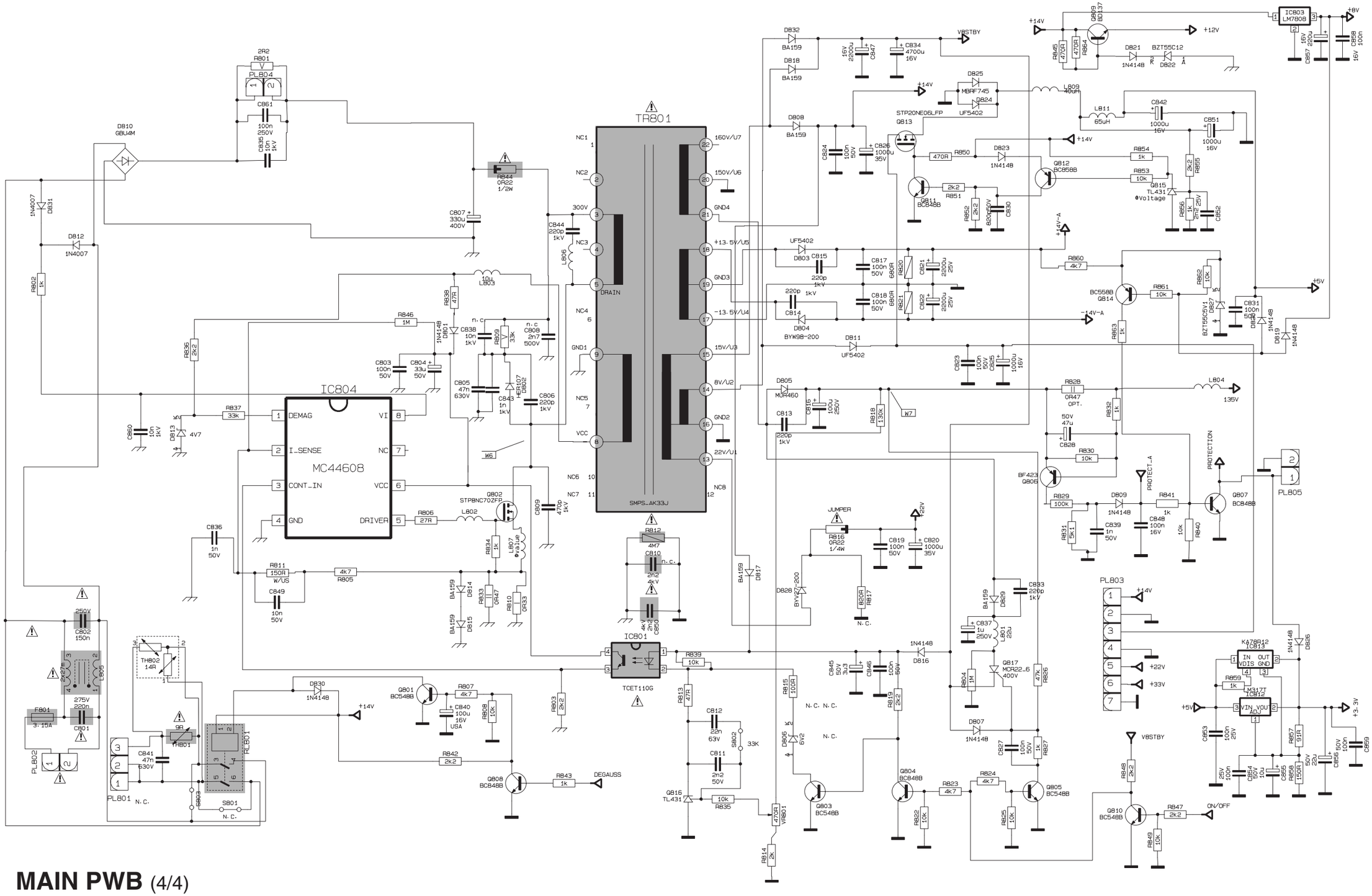


MAIN PWB (3/4)

VE-20121954

AV-28GH1BUF
AV-28GH1SUF

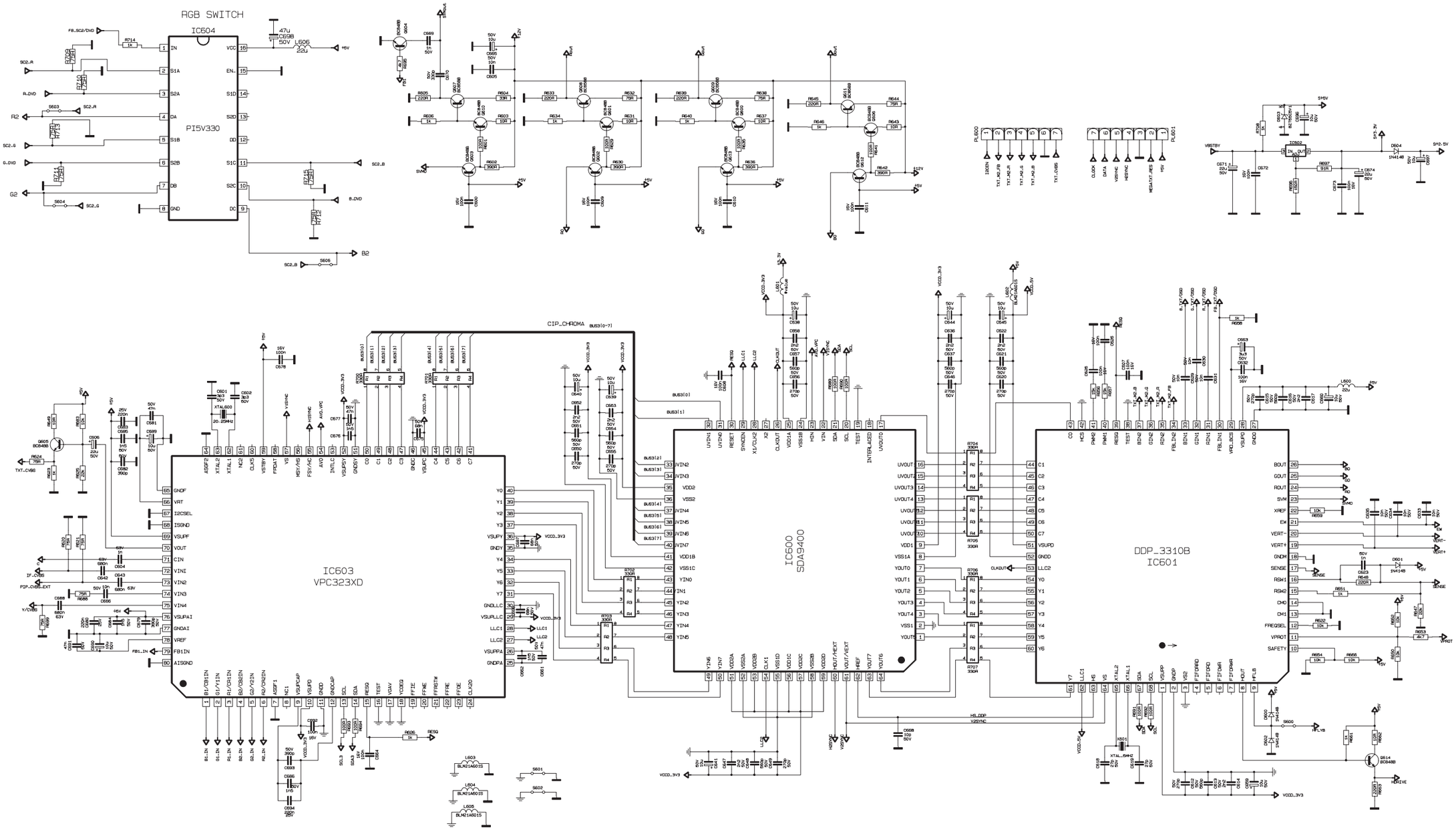
MAIN PWB CIRCUIT DIAGRAM [4/4]



MAIN PWB (4/4)

VE-20121954

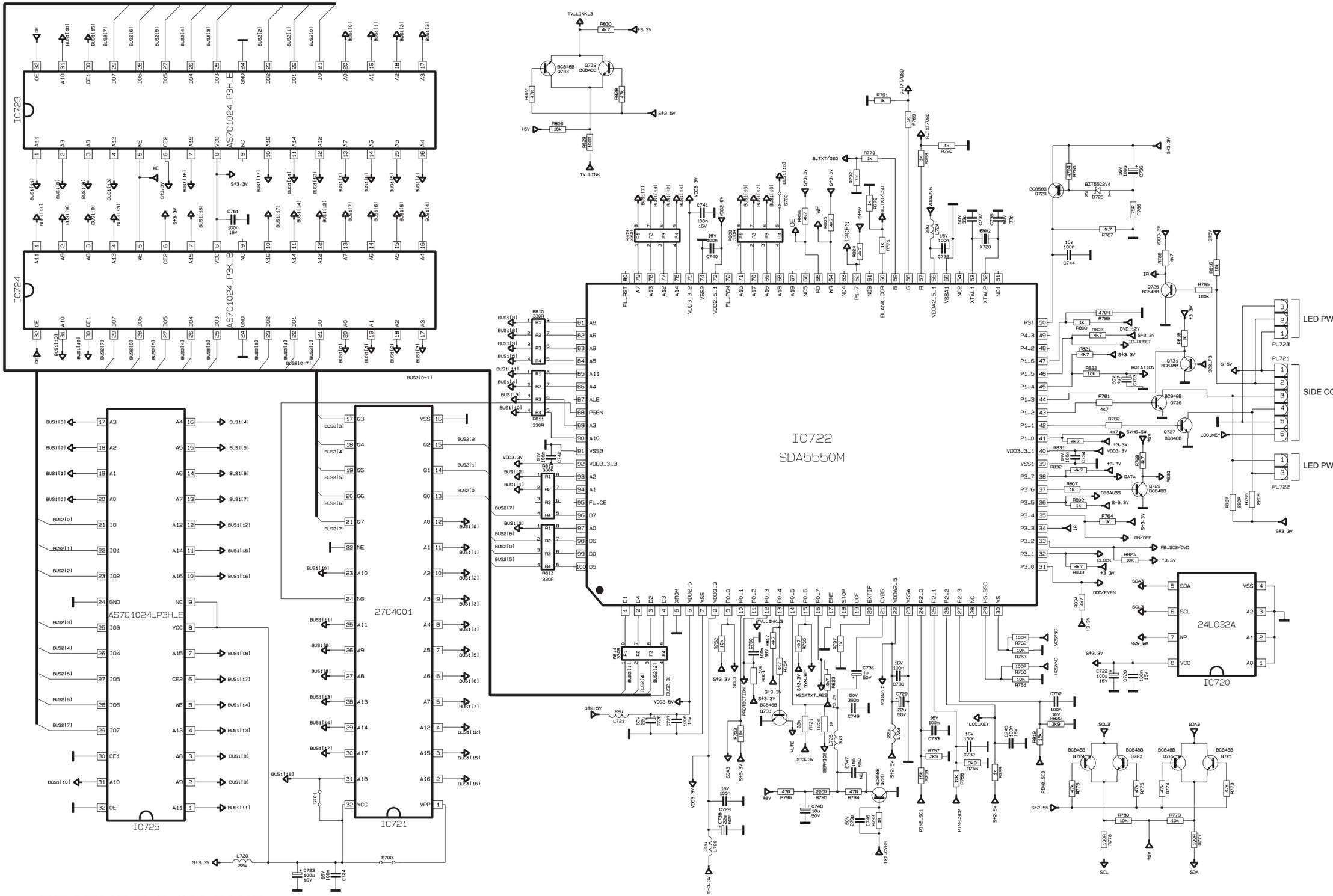
FEATURE BOX PWB CIRCUIT DIAGRAM [1/4]



FEATURE BOX PWB (1/4)

VE-20120497

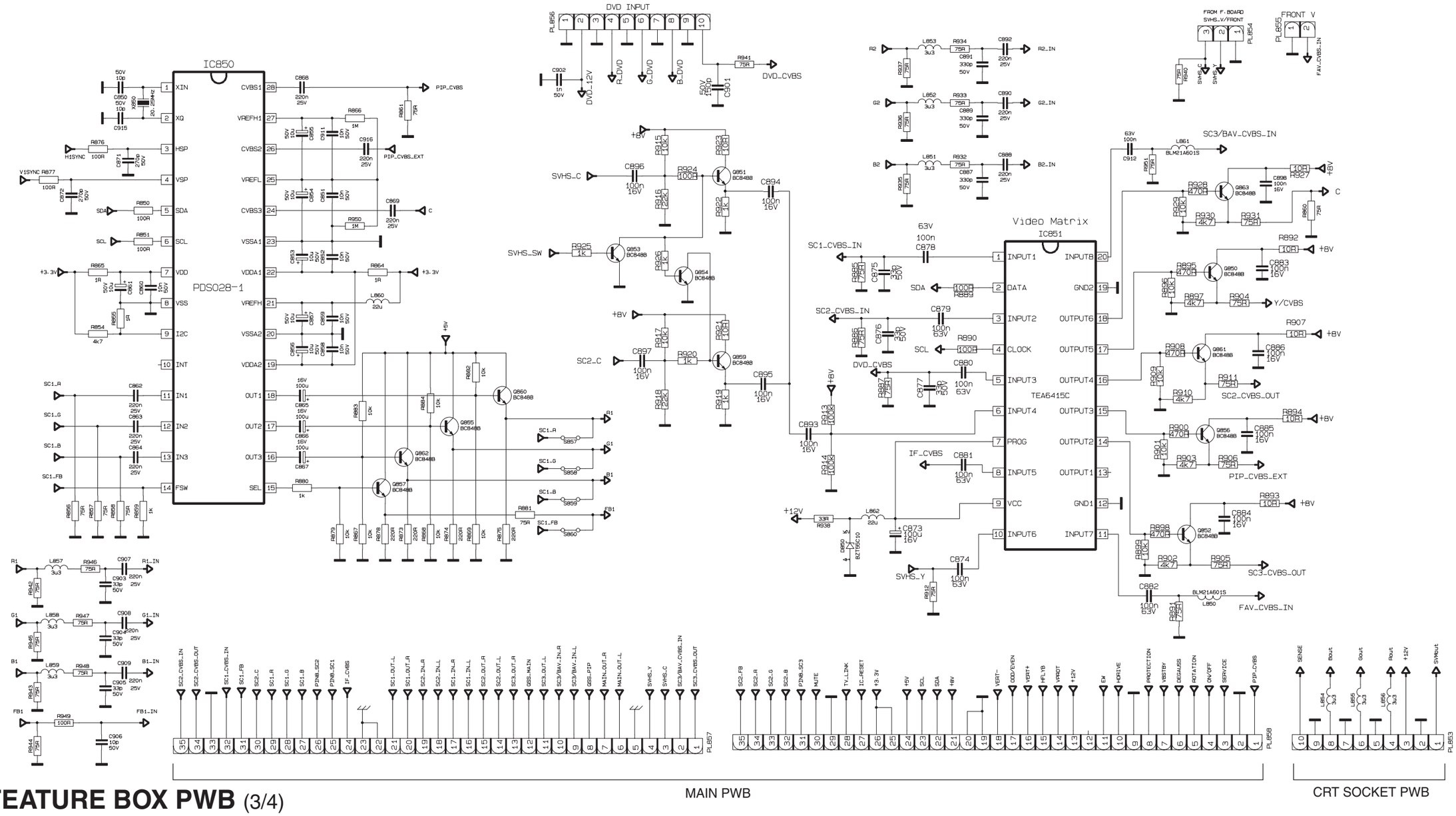
FEATURE BOX PWB CIRCUIT DIAGRAM [2/4]



FEATURE BOX PWB (2/4)

VE-20120497

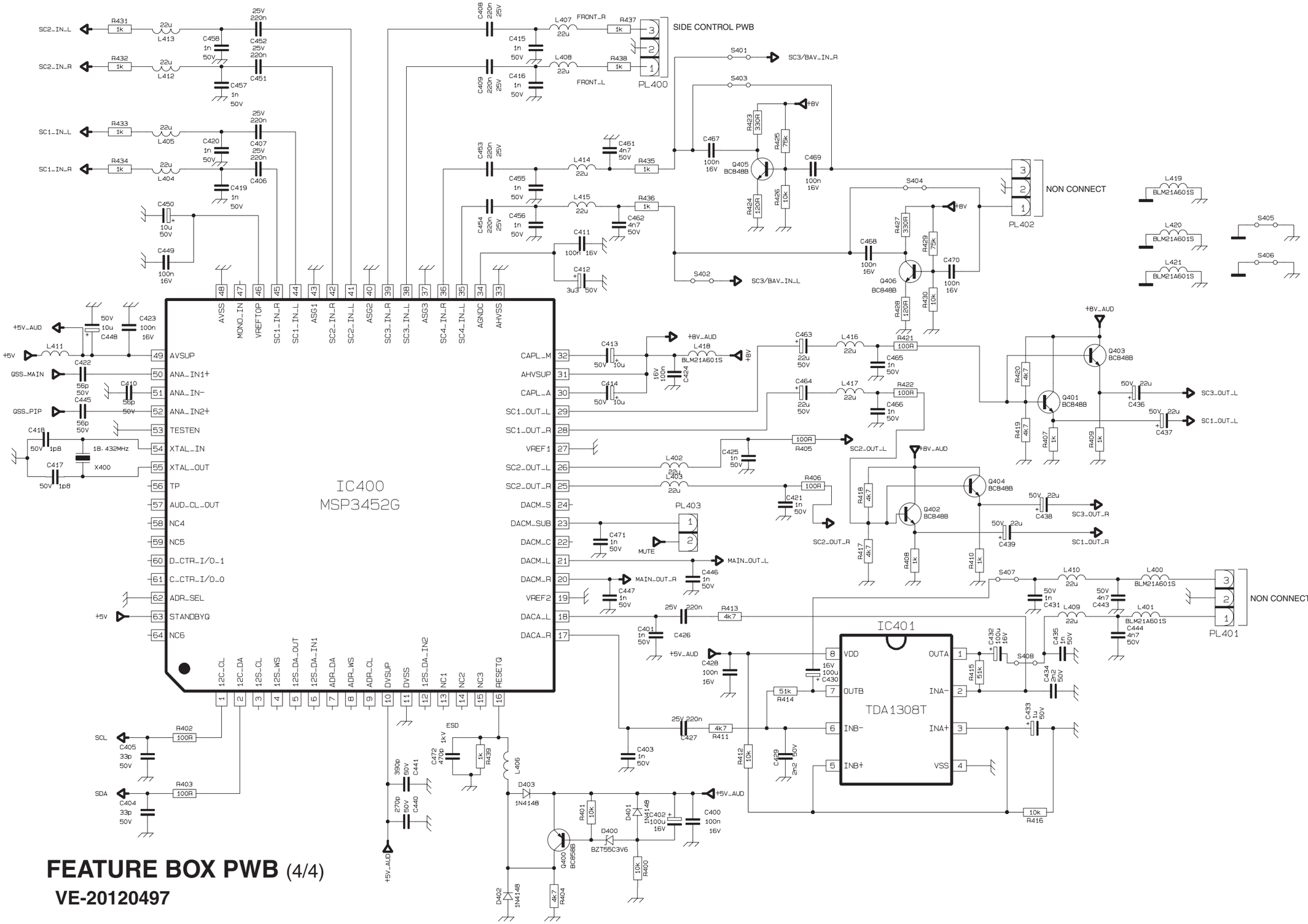
FEATURE BOX PWB CIRCUIT DIAGRAM [3/4]



FEATURE BOX PWB (3/4)

VE-20120497

FEATURE BOX PWB CIRCUIT DIAGRAM [4/4]

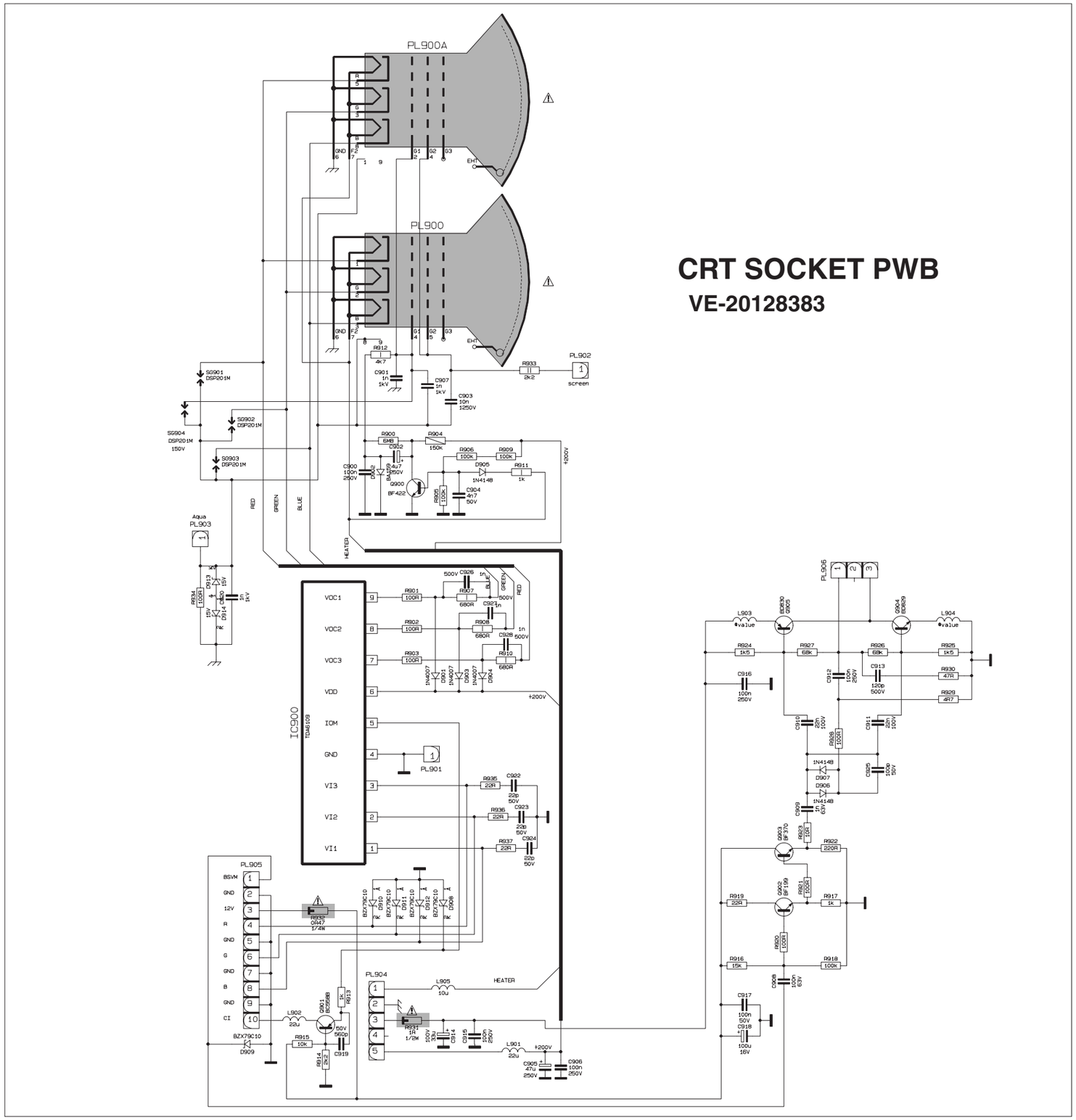


FEATURE BOX PWB (4/4)

VE-20120497

AV-28GH1BUF
AV-28GH1SUF

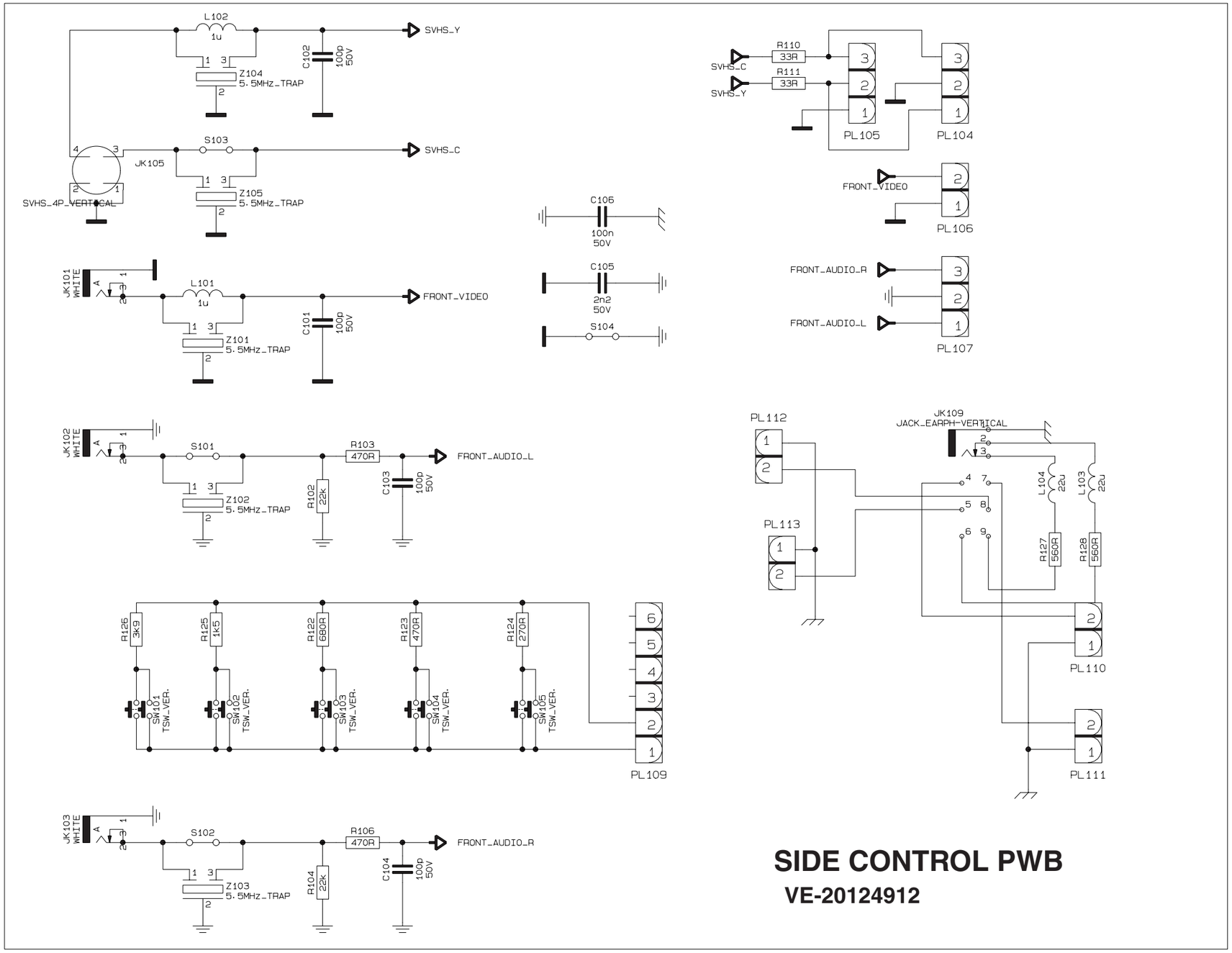
CRT SOCKET PWB CIRCUIT DIAGRAM



CRT SOCKET PWB

VE-20128383

SIDE CONTROL PWB CIRCUIT DIAGRAM

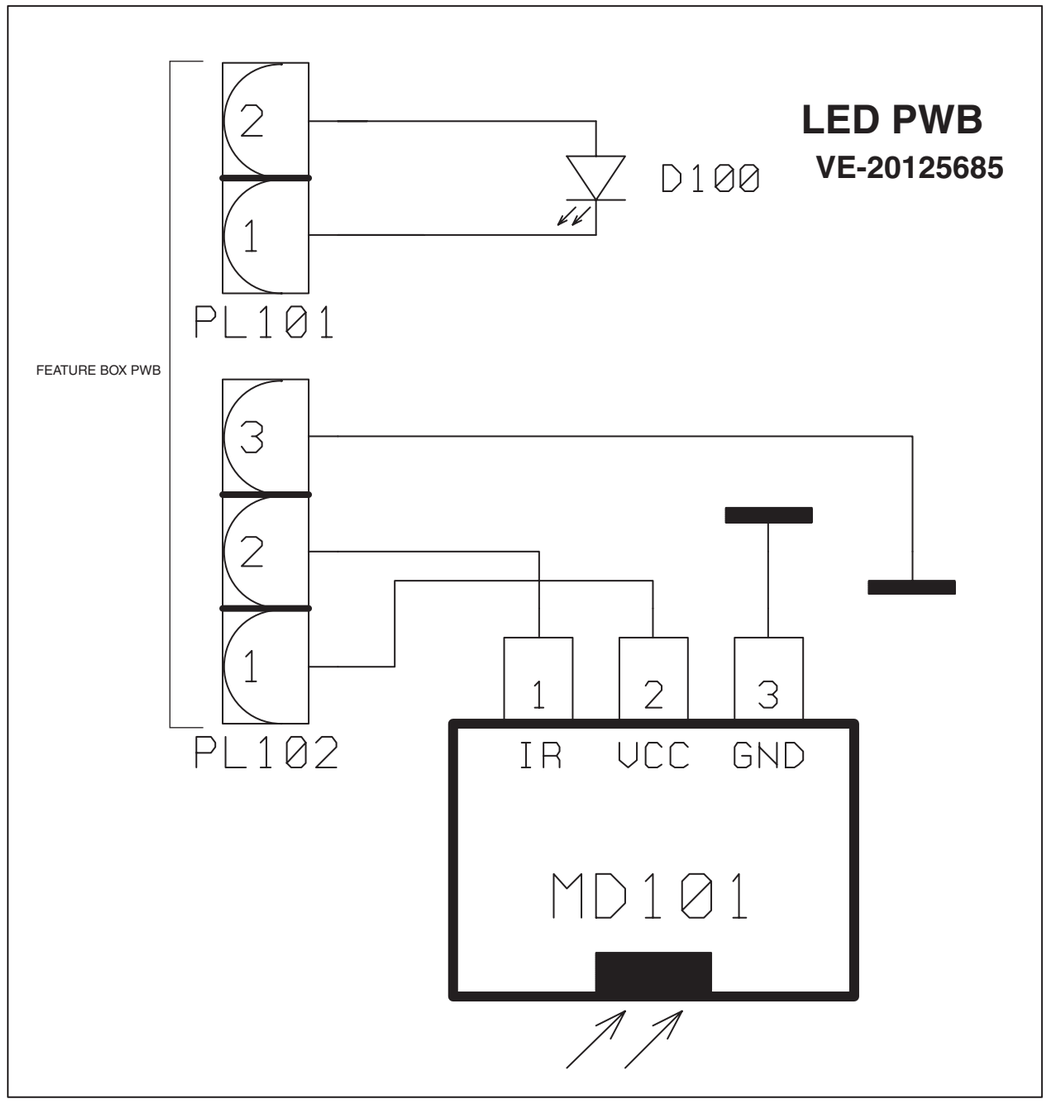


SIDE CONTROL PWB

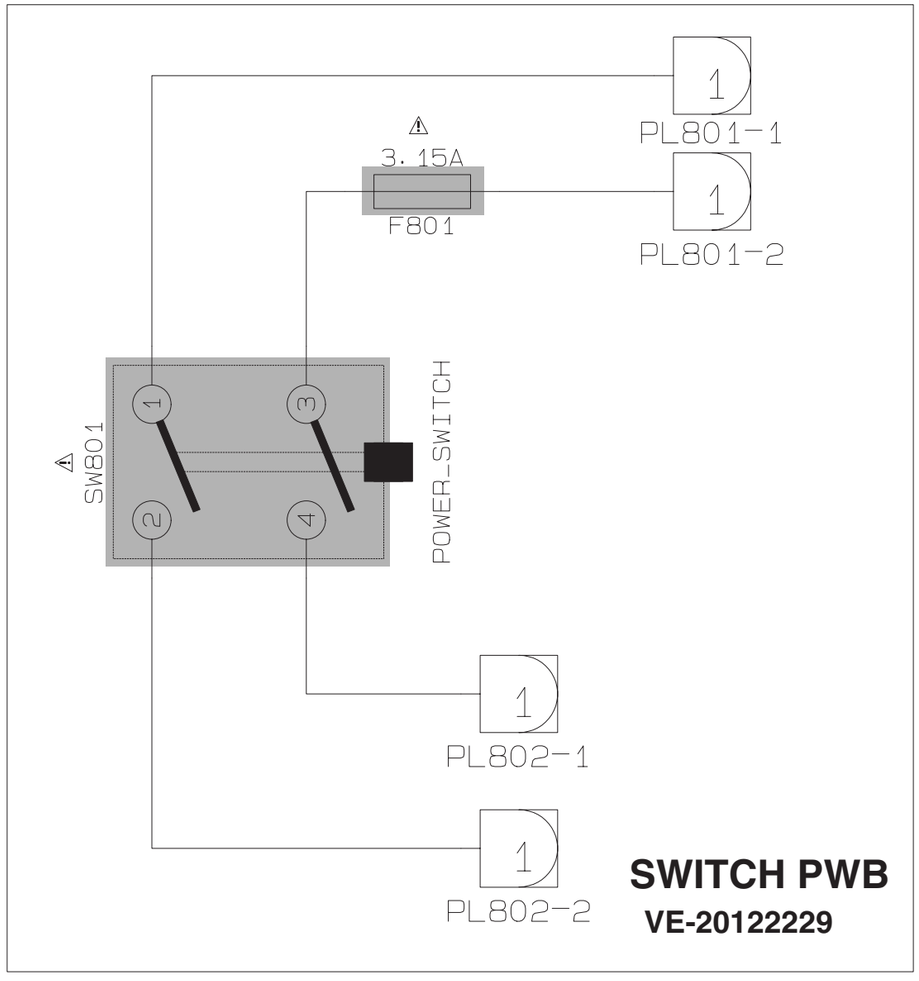
VE-20124912

AV-28GH1BUF
AV-28GH1SUF

LED PWB CIRCUIT DIAGRAM



SWITCH PWB CIRCUIT DIAGRAM



AV-28GH1BUF
AV-28GH1SUF

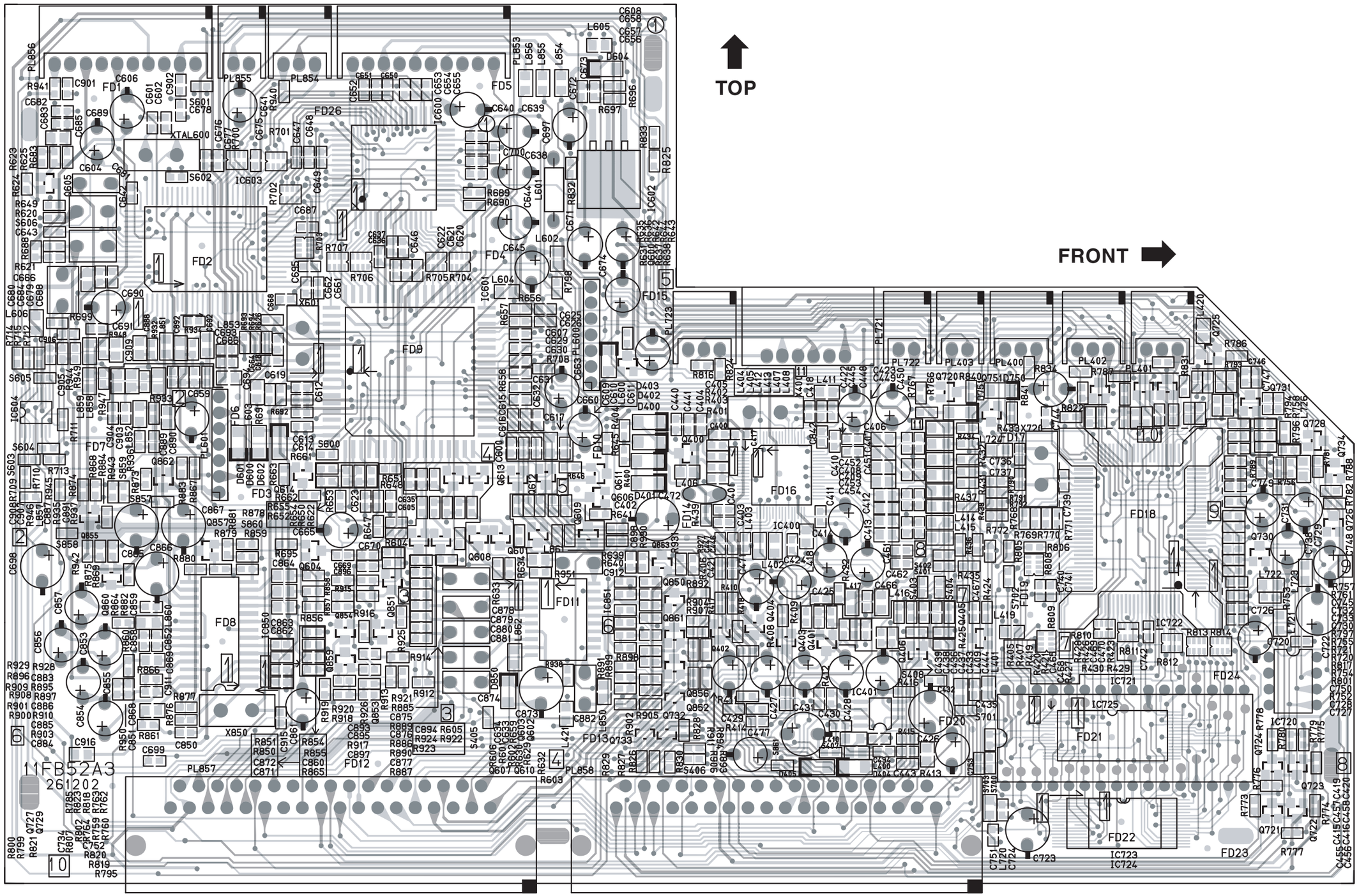
PATTERN DIAGRAMS *MAIN PWB PATTERN*

FRONT

(⏚)

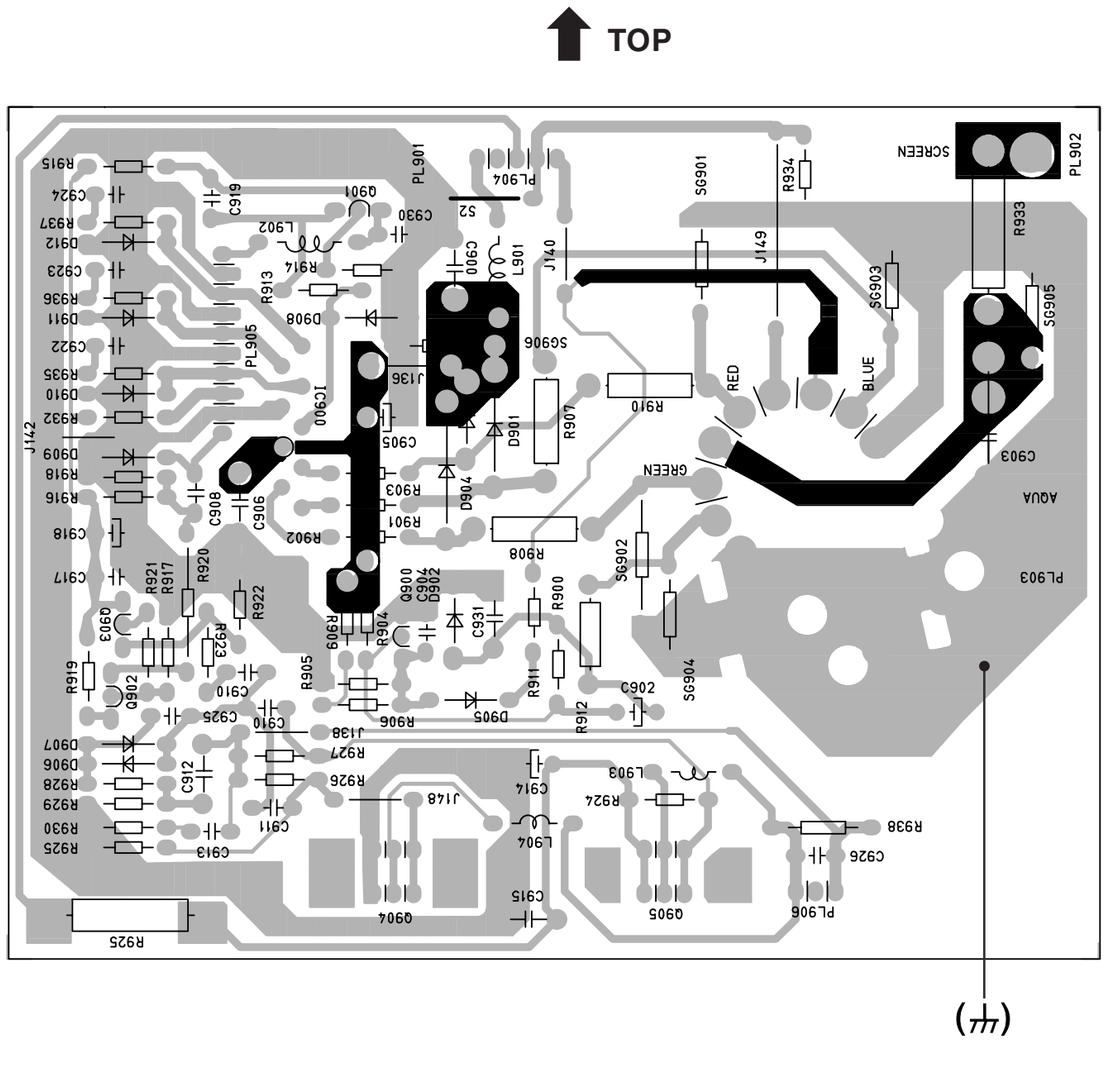
(T)

FEATURE BOX PWB PATTERN



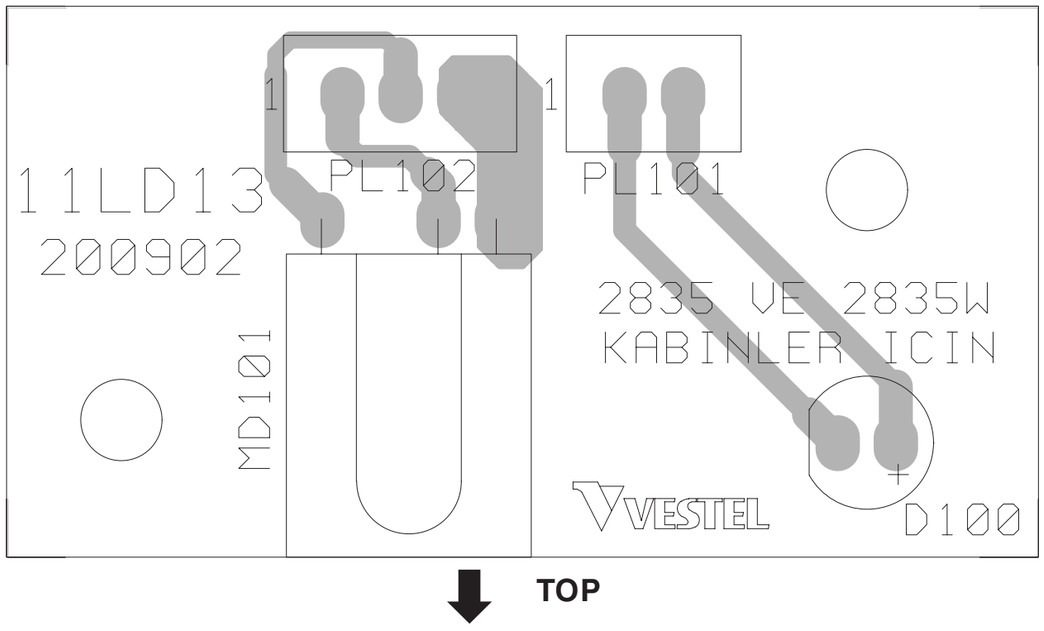
AV-28GH1BUF
AV-28GH1SUF

CRT SOCKET PWB PATTERN

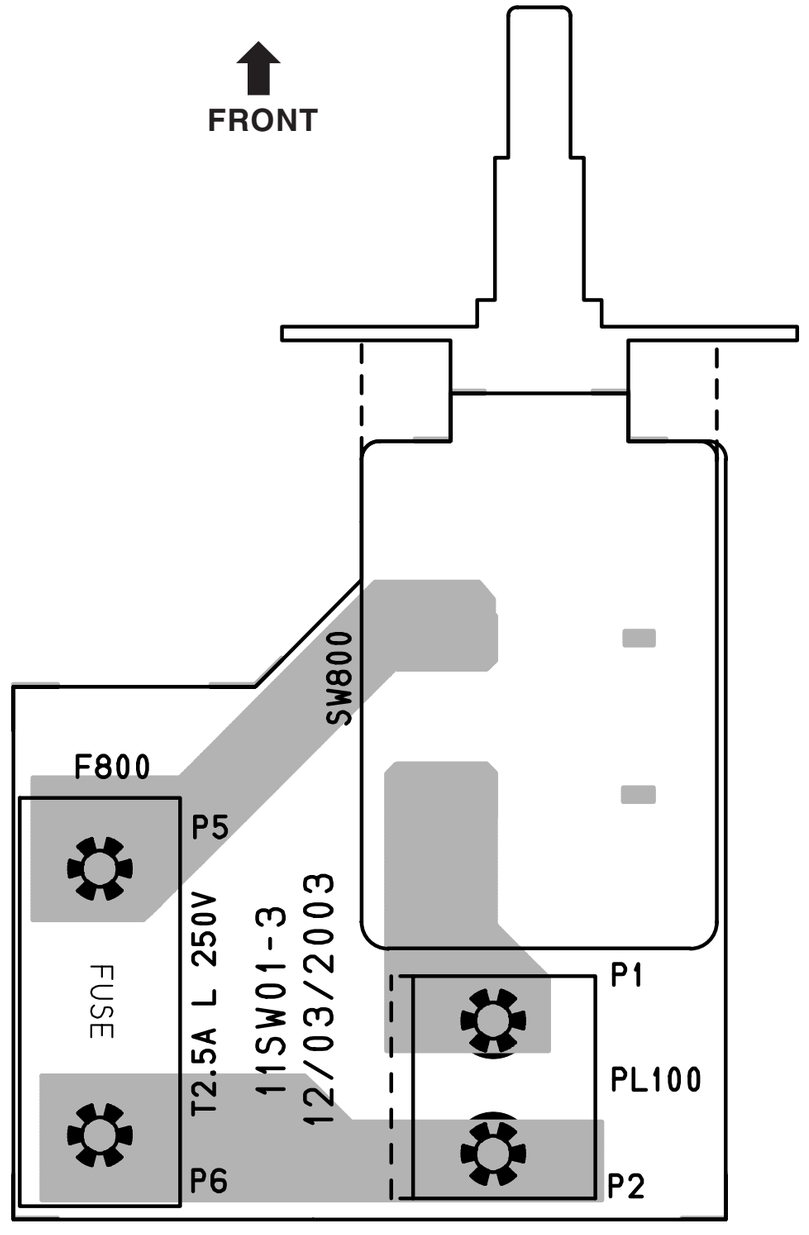

TOP
SCREEN
PL902
PL901
PL904
S2
Q901
C919
C930
L902
L901
C900
J140
S6901
R934
J149
S6903
S6905
R933
S6906
R914
R913
D908
J136
IC900
C905
R903
R901
D901
R907
R910
RED
BLUE
GREEN
AQUA
C903
R908
D904
R902
C908
C906
R909
R904
Q900
C904
D902
C931
R900
S6902
PL903
R905
R906
J138
D905
R911
R912
C902
S6904
R927
R926
J148
C914
L903
R924
L904
C915
Q904
Q905
PL906
R938
C926
R925
C913
C911
C912
R929
R928
D907
D906
R930
R931
C910
C925
R923
R922
Q903
Q902
R919
R921
R917
R920
C917
C918
R916
D909
R918
C908
C906
R932
D910
R935
D911
R936
C922
D912
R937
C923
C924
R915
C919
PL901
Q901
C930
L902
R914
R913
D908
PL905
J136
IC900
C905
R903
R901
D901
R907
R910
RED
BLUE
GREEN
R908
D904
R902
C908
C906
R909
R904
Q900
C904
D902
C931
R900
S6902
PL903
R905
R906
J138
D905
R911
R912
C902
S6904
R927
R926
J148
C914
L903
R924
L904
C915
Q904
Q905
PL906
R938
C926
R925
C913
C911
C912
R929
R928
D907
D906
R930
R925

AV-28GH1BUF
AV-28GH1SUF

LED PWB PATTERN



POWER SWITCH PWB PATTERN



JVC

VICTOR COMPANY OF JAPAN, LIMITED
AV & MULTIMEDIA COMPANY VIDEO DISPLAY CATEGORY 12, 3-chome, Moriya-cho, kanagawa-ku, Yokohama, kanagawa-prefecture, 221-8528, Japan

(No.52138)

Printed in Japan
WPC

PARTS LIST

CONTENTS

■ USING PW BOARD & REMOTE CONTROL UNIT ····· 3-1
■ EXPLODED VIEW PARTS LIST ····· 3-2
■ EXPLODED VIEW ····· 3-3

■ PRINTED WIRING BOARD PARTS LIST
- MAIN PW BOARD ASS'Y ····· 3-4
- FEATURE BOX PW BOARD ASS'Y ····· 3-6
- CRT SOCKET PW BOARD ASS'Y ····· 3-10
- SIDE CONTROL PW BOARD ASS'Y ····· 3-10
- LED PW BOARD ASS'Y ····· 3-10
- SWITCH PW BOARD ASS'Y ····· 3-10

■ PACKING / PACKING PARTS LIST ····· 3-11

USING PW BOARD & REMOTE CONTROL UNIT

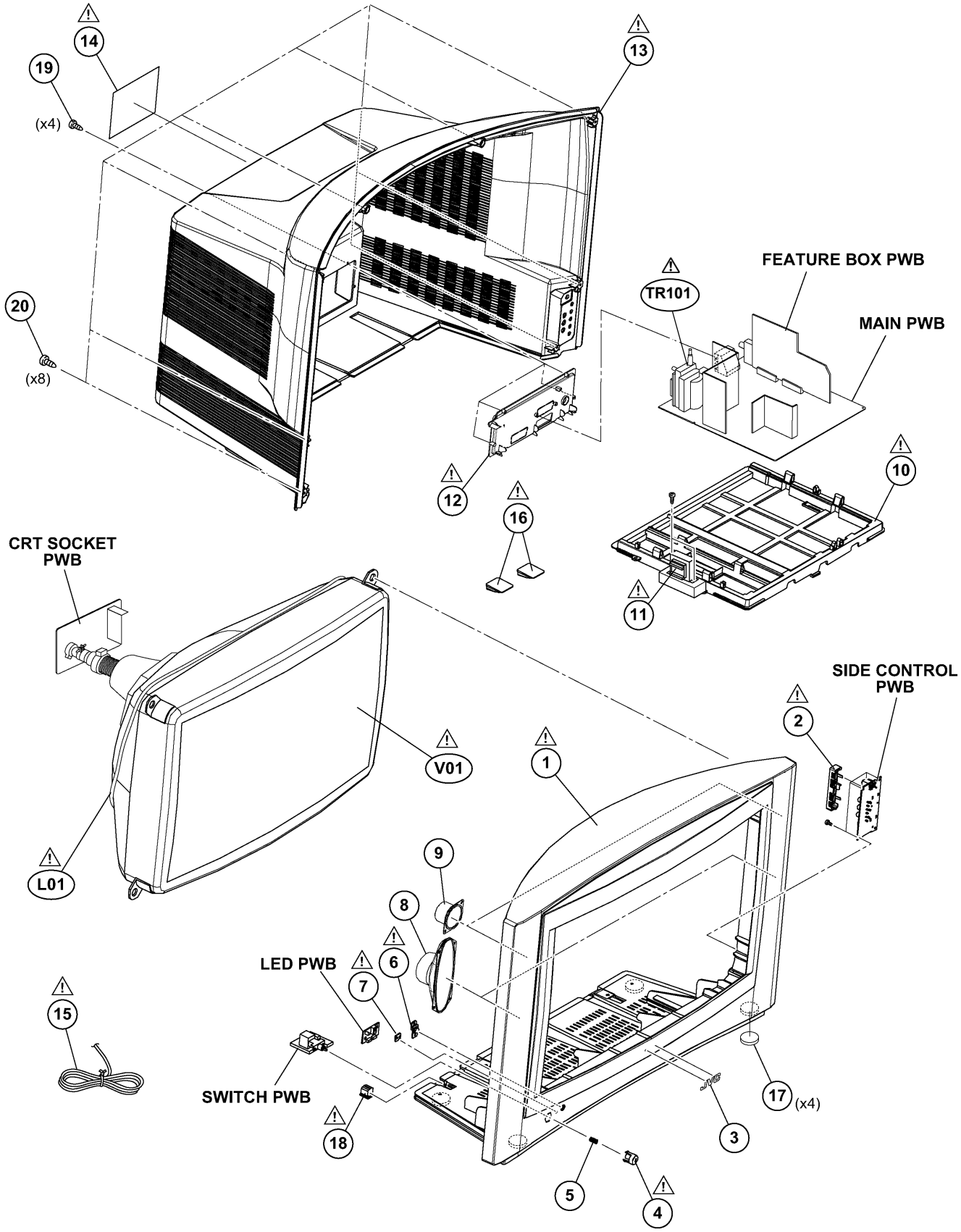
Model / PWB ASS'Y	AV-28GH1BUF	AV-28GH1SUF
MAIN PWB	VE-20121954	←
FEATURE BOX PWB	VE-20120497	←
CRT SOCKET PWB	VE-20128383	←
SIDE CONTROL PWB	VE-20124912	←
LED PWB	VE-20125685	←
SWITCH PWB	VE-20122229	←
REMOTE CONTROL UNIT	VE-30021286 (RM-C1512B)	VE-30021287 (RM-C1512S)

EXPLODED VIEW PARTS LIST

⚠	Ref.No.	Part No.	Part Name	Description
[AV-28GH1BUF : BLACK model]				
⚠	V01	VE-30002759	PICTURE TUBE	Inc. DY, PC MAGNET
⚠	L01	VE-30002140	DEG COIL&EARTH	
⚠	TR101	VE-30017521	FB TRANSF.	Within MAIN PWB
⚠	1	VE-20127770	FRONT CABINET	
⚠	2	VE-20091798	FUNCTION BUTTON	
	3	VE-40013592	LOGO JVC	
⚠	4	VE-20111864	ON/OFF BUTTON(POWER)	
	5	VE-35000013	SPRING (ON/OFF SWITCH)	
⚠	6	VE-20094352	PRE-AMP LENS	
⚠	7	VE-20056446	LED LENS	
	8	VE-30001946	SPEAKER	(x2) 8R 15W 57*160
	9	VE-30001947	TWEETER	(x2) 8R 15W CLOSED
⚠	10	VE-20090585	CHASSIS FRAME	
⚠	11	VE-30018270	PFC TRANSF.	1,7A 43MH 170W
⚠	12	VE-20108124	BACK DOOR	
⚠	13	VE-20121498	BACK COVER	
⚠	14	VE-20127952	LABEL	
⚠	15	VE-30016513	POWER CORD	2.2MT
⚠	16	VE-20110931	BACK COVER HOLDER	(x2)
	17	VE-40014391	FOOT RUBBER	(x4)
⚠	18	VE-20004520	CABLE HOLDER	
	19	VE-35000211	SCREW (2.9x9.5)	(x4) For BACK DOOR
	20	VE-35004572	SCREW (4x20)	(x8) For BACK COVER

⚠	Ref.No.	Part No.	Part Name	Description
[AV-28GH1SUF : SILVER model]				
⚠	V01	VE-30002759	PICTURE TUBE	Inc. DY, PC MAGNET
⚠	L01	VE-30002140	DEG COIL&EARTH	
⚠	TR101	VE-30017521	FB TRANSF.	Within MAIN PWB
⚠	1	VE-20126050	FRONT CABINET	
⚠	2	VE-20096498	FUNCTION BUTTON	
	3	VE-40013593	LOGO JVC	
⚠	4	VE-20120046	ON/OFF BUTTON(POWER)	
	5	VE-35000013	SPRING (ON/OFF SWITCH)	
⚠	6	VE-20094352	PRE-AMP LENS	
⚠	7	VE-20056446	LED LENS	
	8	VE-30001946	SPEAKER	(x2) 8R 15W 57*160
	9	VE-30001947	TWEETER	(x2) 8R 15W CLOSED
⚠	10	VE-20090585	CHASSIS FRAME	
⚠	11	VE-30018270	PFC TRANSF.	1,7A 43MH 170W
⚠	12	VE-20120043	BACK DOOR	
⚠	13	VE-20111866	BACK COVER	
⚠	14	VE-20127958	LABEL	
⚠	15	VE-30016513	POWER CORD	2.2MT
⚠	16	VE-20110931	BACK COVER HOLDER	(x2)
	17	VE-40014391	FOOT RUBBER	(x4)
⚠	18	VE-20004520	CABLE HOLDER	
	19	VE-35000211	SCREW (2.9x9.5)	(x4) For BACK DOOR
	20	VE-35004572	SCREW (4x20)	(x8) For BACK COVER

EXPLODED VIEW



PRINTED WIRING BOARD PARTS LIST

[AV-28GH1BUF / AV-28GH1SUF]

MAIN P.W. BOARD ASS'Y (VE-20121954)

⚠	Symbol No.	Part No.	Part Name	Description
	RESISTOR			
	R1006	VE-30012714	SMD R	1/16W 820R J
	R102	VE-30000529	SMD R	1/10W 1.5K J
	R104	VE-30001079	MO R	1W 100R J
	R105	VE-30000583	CF R	1/4W 220R J
	R106	VE-30012692	SMD R	1/16W 4.7K J
	R107	VE-30012659	SMD R	1/16W 2.2K J
	R108	VE-30000593	SMD R	1/10W 2.2K J
	R109	VE-30012659	SMD R	1/16W 2.2K J
	R110	VE-30000718	CF R	1/4W 4.7K J
	R111	VE-30012662	SMD R	1/16W 2.7K J
	R112	VE-30012659	SMD R	1/16W 2.2K J
	R113	VE-30012509	SMD R	1/16W 100K J
	R115	VE-30012659	SMD R	1/16W 2.2K J
	R116	VE-30001086	MO R	2W 10K J
	R117	VE-30001168	MO R	2W 470RJ
	R118	VE-30000466	CF R	1/4W 1K J
	R119	VE-30012641	SMD R	1/16W 10K J
	R120	VE-30012696	SMD R	1/16W 47K J
	R121	VE-30000918	MF R	1/4W 2.1K F
	R123	VE-30001036	MF R	1/4W 95K F
⚠	R125	VE-30009036	FUSE R	1/2W 0.1R J
	R126	VE-30000564	CF R	1/4W 18K J
	R127	VE-30000718	CF R	1/4W 4.7K J
	R129	VE-30000729	CF R	1/4W 470K J
	R131	VE-30000631	SMD R	1/10W 2.7K J
	R132	VE-30012712	SMD R	1/16W 8.2K J
	R136	VE-30000477	CF R	1/4W 100K J
	R137	VE-30007789	SMD R	1/10W 27K F
	R138	VE-30000636	SMD R	1/10W 27K J
	R142	VE-30001011	MF R	1/4W 6.8K F
	R143	VE-30001011	MF R	1/4W 6.8K F
	R145	VE-30001077	MO R	2W 10R J
	R146	VE-30000541	CF R	1/4W 1.5M J
	R147	VE-30000744	CF R	1/4W 560R J
	R148	VE-30000475	SMD R	1/10W 10K J
	R155	VE-30000784	CF R	1/4W 680K J
	R156	VE-30001036	MF R	1/4W 95K F
	R157	VE-30000477	CF R	1/4W 100K J
	R158	VE-30012641	SMD R	1/16W 10K J
	R159	VE-30000721	SMD R	1/10W 4.7K J
	R160	VE-30000721	SMD R	1/10W 4.7K J
	R161	VE-30000475	SMD R	1/10W 10K J
	R162	VE-30000721	SMD R	1/10W 4.7K J
	R165	VE-30000622	CF R	1/4W 270R J
	R166	VE-30000529	SMD R	1/10W 1.5K J
	R169	VE-30000628	CF R	1/4W 2.7K J
	R171	VE-30000626	SMD R	1/10W 270R J
	R180	VE-30001077	MO R	2W 10R J
⚠	R183	VE-30001244	FUSE R	1/2W 0.47R J
	R185	VE-30012692	SMD R	1/16W 4.7K J
	R186	VE-30000531	CF R	1/4W 15K J
	R187	VE-30012506	SMD R	1/16W 1.5K J
	R205	VE-30014022	SMD R	1/16W 47R J
	R207	VE-30012657	SMD R	1/16W 1K J
	R215	VE-30012707	SMD R	1/16W 680R J
	R216	VE-30012707	SMD R	1/16W 680R J
	R217	VE-30012707	SMD R	1/16W 680R J
	R218	VE-30012707	SMD R	1/16W 680R J
	R230	VE-30012707	SMD R	1/16W 680R J
	R235	VE-30012707	SMD R	1/16W 680R J
	R403	VE-30012682	SMD R	1/16W 30K J
	R406	VE-30012508	SMD R	1/16W 1.8K J
	R409	VE-30012712	SMD R	1/16W 8.2K J
	R415	VE-30014420	SMD R	1/16W 10K F
	R417	VE-30012712	SMD R	1/16W 8.2K J
	R418	VE-30012698	SMD R	1/16W 5.6K J
	R422	VE-30012677	SMD R	1/16W 3.3K J
	R424	VE-30012657	SMD R	1/16W 1K J
	R429	VE-30000515	CF R	1/4W 15R J
	R802	VE-30000718	CF R	1/4W 4.7K J
	R803	VE-30000593	SMD R	1/10W 2.2K J
	R804	VE-30000481	CF R	1/4W 1M J
	R805	VE-30000983	MF R	1/4W 4.7K F
	R806	VE-30000452	CF R	1/4W 10R J
	R807	VE-30012692	SMD R	1/16W 4.7K J
	R808	VE-30012641	SMD R	1/16W 10K J
	R809	VE-30010205	MO R	5W 39K J (RADIAL)
	R810	VE-30001159	MO R	1W 0.33R J
⚠	R812	VE-30001257	MG R	1/2W 4.7M J
	R813	VE-30000710	SMD R	1/10W 47R J
	R814	VE-30000614	SMD R	1/10W 2.4K J
	R815	VE-30012510	SMD R	1/16W 100R J
	R818	VE-30000782	SMD R	1/10W 68K J
	R819	VE-30012641	SMD R	1/16W 10K J
	R820	VE-30000769	CF R	1/2W 680R J
	R821	VE-30000769	CF R	1/2W 680R J

⚠	Symbol No.	Part No.	Part Name	Description
	RESISTOR			
	R822	VE-30012641	SMD R	1/16W 10K J
	R823	VE-30000718	CF R	1/4W 4.7K J
	R824	VE-30000718	CF R	1/4W 4.7K J
	R825	VE-30012641	SMD R	1/16W 10K J
	R827	VE-30000469	SMD R	1/10W 1K J
	R828	VE-30001174	MO R	2W 0.47R J
	R829	VE-30000477	CF R	1/4W 100K J
	R830	VE-30000475	SMD R	1/10W 10K J
	R831	VE-30007026	SMD R	1/10W 5.1K J
	R832	VE-30000466	CF R	1/4W 1K J
	R833	VE-30001174	MO R	2W 0.47R J
	R834	VE-30000469	SMD R	1/10W 1K J
	R835	VE-30000475	SMD R	1/10W 10K J
	R836	VE-30000593	SMD R	1/10W 2.2K J
	R837	VE-30000503	SMD R	1/10W 12K J
	R838	VE-30000517	SMD R	1/10W 15R J
	R839	VE-30012641	SMD R	1/16W 10K J
	R840	VE-30012641	SMD R	1/16W 10K J
	R841	VE-30012657	SMD R	1/16W 1K J
	R842	VE-30012641	SMD R	1/16W 10K J
	R843	VE-30000466	CF R	1/4W 1K J
⚠	R844	VE-30001224	FUSE R	1/2W 0.22R J
	R845	VE-30012695	SMD R	1/16W 470R J
	R847	VE-30012659	SMD R	1/16W 2.2K J
	R848	VE-30012659	SMD R	1/16W 2.2K J
	R849	VE-30012641	SMD R	1/16W 10K J
⚠	R850	VE-30000469	SMD R	1/10W 1K J
	R851	VE-30012659	SMD R	1/16W 2.2K J
	R852	VE-30012659	SMD R	1/16W 2.2K J
	R853	VE-30012641	SMD R	1/16W 10K J
	R854	VE-30012657	SMD R	1/16W 1K J
	R855	VE-30000925	MF R	1/4W 2.2K F
	R856	VE-30000918	MF R	1/4W 2.1K F
	R859	VE-30012657	SMD R	1/16W 1K J
	R860	VE-30000718	CF R	1/4W 4.7K J
	R861	VE-30012641	SMD R	1/16W 10K J
	R862	VE-30012641	SMD R	1/16W 10K J
	R863	VE-30012657	SMD R	1/16W 1K J
	R864	VE-30012695	SMD R	1/16W 470R J
	R866	VE-30000660	CF R	1/4W 3.3K J
	R867	VE-30012689	SMD R	1/16W 39K J
	R868	VE-30000782	SMD R	1/10W 68K J
	R922	VE-30012705	SMD R	1/16W 6.8K J
	R951	VE-30012659	SMD R	1/16W 2.2K J
	R952	VE-30000459	CF R	1/4W 100R J
	R953	VE-30012510	SMD R	1/16W 100R J
	R954	VE-30000459	CF R	1/4W 100R J
	R955	VE-30012510	SMD R	1/16W 100R J
	R958	VE-30012698	SMD R	1/16W 5.6K J
	R960	VE-30012685	SMD R	1/16W 33K J
	R961	VE-30012705	SMD R	1/16W 6.8K J
	R962	VE-30012659	SMD R	1/16W 2.2K J
	R963	VE-30012657	SMD R	1/16W 1K J
	R964	VE-30012510	SMD R	1/16W 100R J
	R965	VE-30012705	SMD R	1/16W 6.8K J
	R966	VE-30012644	SMD R	1/16W 12K J
	R967	VE-30012696	SMD R	1/16W 47K J
	R968	VE-30012684	SMD R	1/16W 330R J
	R970	VE-30010643	SMD R	1/10W 39R J
	R972	VE-30012669	SMD R	1/16W 22K J
	R973	VE-30012669	SMD R	1/16W 22K J
	R993	VE-30012695	SMD R	1/16W 470R J
	R994	VE-30012668	SMD R	1/16W 220R J
	R995	VE-30000459	CF R	1/4W 100R J
	R997	VE-30014022	SMD R	1/16W 47R J
	R998	VE-30000792	CF R	1/4W 75R J
	S408	VE-30012982	SMD R	1/16W 10R J
	S409	VE-30012982	SMD R	1/16W 10R J
	S802	VE-30012657	SMD R	1/16W 1K J
	VR801	VE-30001064	ADJ.R	1/10W 470R VER (MAN)
	CAPACITOR			
	C100	VE-30000294	SMD CAP.	100NF 50V K
	C1006	VE-30012581	SMD CAP.	1NF 50V K R
	C1007	VE-30012581	SMD CAP.	1NF 50V K R
	C101	VE-30000353	EL CAP.	100UF 25V M
	C102	VE-30010517	MKT CAP.	33NF 100V K
	C104	VE-30000345	EL CAP.	10UF 50V M
	C105	VE-30012590	SMD CAP.	47NF 50V K
	C106	VE-30000362	EL CAP.	1UF 50V M
	C107	VE-30000346	EL CAP.	10UF 100V M
	C108	VE-30012567	SMD CAP.	220PF 50V J

CAPACITOR

⚠	Symbol No.	Part No.	Part Name	Description
	C113	VE-30000415	EL CAP.	4.7UF 250V M
	C115	VE-30006909	EL CAP.	100UF M 250V
	C116	VE-30000431	CER CAP.	100PF 1KV M
	C117	VE-30000350	EL CAP.	10UF 250V M
	C119	VE-30000402	EL CAP.	47UF 100V M
	C120	VE-30000360	EL CAP.	1000UF 25V M
	C123	VE-30000302	CER CAP.	1.8NF 50V KB
	C124	VE-30000360	EL CAP.	1000UF 25V M
	C125	VE-30000294	SMD CAP.	100NF 50V K
	C126	VE-30000294	SMD CAP.	100NF 50V K
	C128	VE-30000296	CER CAP.	100NF 100V Z F
	C129	VE-30000078	MKT CAP.	1UF 100V M
	C130	VE-30000302	CER CAP.	1.8NF 50V KB
	C131	VE-30000283	CER CAP.	1NF 50V K B
	C134	VE-30000393	EL CAP.	3.3UF 50V M
	C135	VE-30019641	MKT CAP.	100NF 100V J NO-HIT
	C139	VE-30000400	EL CAP.	47UF 50V M
	C140	VE-30012581	SMD CAP.	1NF 50V K R
	C142	VE-30000074	MKT CAP.	100NF 63V J
	C145	VE-30000286	CER CAP.	1NF 500V K B
	C146	VE-30000296	CER CAP.	100NF 100V Z F
	C148	VE-30000296	CER CAP.	100NF 100V Z F
	C210	VE-30000345	EL CAP.	10UF 50V M
	C212	VE-30016654	SMD CAP.	100NF 16V K R
	C233	VE-30012592	SMD CAP.	6.8NF 50V K
	C235	VE-30012592	SMD CAP.	6.8NF 50V K
	C236	VE-30012592	SMD CAP.	6.8NF 50V K
	C237	VE-30012592	SMD CAP.	6.8NF 50V K
	C239	VE-30012607	SMD CAP.	150PF 50V J
	C240	VE-30012581	SMD CAP.	1NF 50V K R
	C241	VE-30012607	SMD CAP.	150PF 50V J
	C243	VE-30012589	SMD CAP.	4.7NF 50V K
	C244	VE-30012589	SMD CAP.	4.7NF 50V K
	C245	VE-30012589	SMD CAP.	4.7NF 50V K
	C246	VE-30012607	SMD CAP.	150PF 50V J
	C247	VE-30012589	SMD CAP.	4.7NF 50V K
	C248	VE-30012607	SMD CAP.	150PF 50V J
	C249	VE-30012581	SMD CAP.	1NF 50V K R
	C250	VE-30012589	SMD CAP.	4.7NF 50V K
	C251	VE-30012589	SMD CAP.	4.7NF 50V K
	C252	VE-30012607	SMD CAP.	150PF 50V J
	C253	VE-30012607	SMD CAP.	150PF 50V J
	C256	VE-30012607	SMD CAP.	150PF 50V J
	C261	VE-30012607	SMD CAP.	150PF 50V J
	C262	VE-30012607	SMD CAP.	150PF 50V J
	C263	VE-30012607	SMD CAP.	150PF 50V J
	C266	VE-30012607	SMD CAP.	150PF 50V J
	C267	VE-30012607	SMD CAP.	150PF 50V J
	C270	VE-30012592	SMD CAP.	6.8NF 50V K
	C271	VE-30012592	SMD CAP.	6.8NF 50V K
	C273	VE-30012607	SMD CAP.	150PF 50V J
	C274	VE-30012581	SMD CAP.	1NF 50V K R
	C276	VE-30012589	SMD CAP.	4.7NF 50V K
	C280	VE-30012607	SMD CAP.	150PF 50V J
	C284	VE-30012581	SMD CAP.	1NF 50V K R
	C287	VE-30012589	SMD CAP.	4.7NF 50V K
	C289	VE-30012607	SMD CAP.	150PF 50V J
	C290	VE-30012607	SMD CAP.	150PF 50V J
	C301	VE-30000284	SMD CAP.	1NF 50V K R
	C307	VE-30012607	SMD CAP.	150PF 50V J
	C308	VE-30012607	SMD CAP.	150PF 50V J
	C309	VE-30012607	SMD CAP.	150PF 50V J
	C310	VE-30012607	SMD CAP.	150PF 50V J
	C405	VE-30000071	MKT CAP.	10NF 63V J
	C406	VE-30012568	SMD CAP.	270PF 50V J
	C407	VE-30012585	SMD CAP.	2.2NF 50V K R
	C408	VE-30000100	MKT CAP.	330NF 63V J
	C409	VE-30000295	CER CAP.	100NF 50V Z F
	C410	VE-30000295	CER CAP.	100NF 50V Z F
	C411	VE-30000100	MKT CAP.	330NF 63V J
	C419	VE-30012589	SMD CAP.	4.7NF 50V K
	C420	VE-30012603	SMD CAP.	100NF 25V K R
	C421	VE-30012603	SMD CAP.	100NF 25V K R
	C423	VE-30012603	SMD CAP.	100NF 25V K R
	C424	VE-30000383	EL CAP.	2200UF 25V M
	C426	VE-30012568	SMD CAP.	270PF 50V J
	C427	VE-30012585	SMD CAP.	2.2NF 50V K R
	C428	VE-30000100	MKT CAP.	330NF 63V J
	C429	VE-30000295	CER CAP.	100NF 50V Z F
	C430	VE-30000295	CER CAP.	100NF 50V Z F
	C431	VE-30000100	MKT CAP.	330NF 63V J
	C432	VE-30000383	EL CAP.	2200UF 25V M
	C433	VE-30012589	SMD CAP.	4.7NF 50V K
	C455	VE-30012603	SMD CAP.	100NF 25V K R
	C456	VE-30012603	SMD CAP.	100NF 25V K R
	C458	VE-30012603	SMD CAP.	100NF 25V K R
	C462	VE-30000353	EL CAP.	100UF 25V M
	C463	VE-30000353	EL CAP.	100UF 25V M
	C464	VE-30000353	EL CAP.	100UF 25V M
	C465	VE-30000353	EL CAP.	100UF 25V M
	C466	VE-30000071	MKT CAP.	10NF 63V J
	C467	VE-30012560	SMD CAP.	100PF 50V J
	C468	VE-30000352	EL CAP.	100UF 16V M
	C469	VE-30000069	MKT CAP.	1NF 100V J

CAPACITOR

⚠	Symbol No.	Part No.	Part Name	Description
	C470	VE-30000069	MKT CAP.	1NF 100V J
	C471	VE-30000433	CER CAP.	1NF 1KV M B
	C472	VE-30000069	MKT CAP.	1NF 100V J
	C473	VE-30000069	MKT CAP.	1NF 100V J
	C474	VE-30000433	CER CAP.	1NF 1KV M B
⚠	C801	VE-30000094	MKT CAP.	220NF AC275V M
	C803	VE-30000294	SMD CAP.	100NF 50V K
	C804	VE-30000387	EL CAP.	33UF 50V M
	C805	VE-30000161	MKP CAP.	47NF 630V J
	C806	VE-30007308	CER CAP.	220PF 1KV K
	C807	VE-30000421	EL CAP.	220UF 400V M
	C808	VE-30000319	CER CAP.	2.7NF 500V K B
	C809	VE-30009208	CER CAP.	470PF 1KV K (PULSE)
⚠	C810	VE-30000440	CER CAP.	2.2NF 4KV M
	C811	VE-30000309	SMD CAP.	2.2NF 50V K R
	C812	VE-30000099	MKT CAP.	33NF 63V J
	C813	VE-30007308	CER CAP.	220PF 1KV K
	C814	VE-30007308	CER CAP.	220PF 1KV K
	C815	VE-30007308	CER CAP.	220PF 1KV K
	C816	VE-30006909	EL CAP.	100UF M 250V
	C817	VE-30000294	SMD CAP.	100NF 50V K
	C818	VE-30000294	SMD CAP.	100NF 50V K
	C821	VE-30000383	EL CAP.	2200UF 25V M
	C822	VE-30000383	EL CAP.	2200UF 25V M
	C823	VE-30000294	SMD CAP.	100NF 50V K
	C824	VE-30000295	CER CAP.	100NF 50V Z F
	C825	VE-30000360	EL CAP.	1000UF 25V M
	C826	VE-30000360	EL CAP.	1000UF 25V M
	C827	VE-30000294	SMD CAP.	100NF 50V K
	C828	VE-30000400	EL CAP.	47UF 50V M
	C831	VE-30000295	CER CAP.	100NF 50V Z F
	C834	VE-30000411	EL CAP.	4700UF 16V M
	C837	VE-30000367	EL CAP.	1UF 250V M
	C839	VE-30012581	SMD CAP.	1NF 50V K R
	C840	VE-30000352	EL CAP.	100UF 16V M
	C842	VE-30000360	EL CAP.	1000UF 25V M
	C843	VE-30000433	CER CAP.	1NF 1KV M B
	C845	VE-30000393	EL CAP.	3.3UF 50V M
	C846	VE-30000294	SMD CAP.	100NF 50V K
	C848	VE-30016654	SMD CAP.	100NF 16V K R
⚠	C850	VE-30000440	CER CAP.	2.2NF 4KV M
	C851	VE-30000360	EL CAP.	1000UF 25V M
	C852	VE-30012567	SMD CAP.	220PF 50V J
	C853	VE-30012603	SMD CAP.	100NF 25V K R
	C856	VE-30000352	EL CAP.	100UF 16V M
	C857	VE-30000375	EL CAP.	220UF 16V M
	C858	VE-30016654	SMD CAP.	100NF 16V K R
	C859	VE-30000294	SMD CAP.	100NF 50V K
	C861	VE-30000075	MKT CAP.	100NF 250V K (DC)
	C862	VE-30000367	EL CAP.	1UF 250V M
	C864	VE-30000190	CER CAP.	100PF 50V J CH
	C867	VE-30012574	SMD CAP.	470PF 50V J
	C950	VE-30012560	SMD CAP.	100PF 50V J
	C951	VE-30012603	SMD CAP.	100NF 25V K R
	C952	VE-30012569	SMD CAP.	33PF 50V J
	C953	VE-30000345	EL CAP.	10UF 50V M
	C954	VE-30000345	EL CAP.	10UF 50V M
	C955	VE-30012569	SMD CAP.	33PF 50V J
	C956	VE-30000400	EL CAP.	47UF 50V M
	C958	VE-30012603	SMD CAP.	100NF 25V K R
	C959	VE-30012569	SMD CAP.	33PF 50V J
	C960	VE-30012569	SMD CAP.	33PF 50V J
	C961	VE-30012582	SMD CAP.	10NF 50V K R
	C962	VE-30012572	SMD CAP.	390PF 50V J
	C963	VE-30000109	MKT CAP.	470NF 63V J
	C964	VE-30012610	SMD CAP.	10NF 50V J
	C965	VE-30012566	SMD CAP.	22PF 50V J
	C966	VE-30000109	MKT CAP.	470NF 63V J
	C967	VE-30016126	SMD CAP.	220NF 16V K R
	C968	VE-30012583	SMD CAP.	1.5NF 50V K
	C969	VE-30012582	SMD CAP.	10NF 50V K R
	C970	VE-30000345	EL CAP.	10UF 50V M
	C972	VE-30012603	SMD CAP.	100NF 25V K R
	C994	VE-30012581	SMD CAP.	1NF 50V K R
	C996	VE-30016126	SMD CAP.	220NF 16V K R
	R163	VE-30010560	SMD CAP.	220NF 25V K R
	R870	VE-30018085	VAR CAP.	510V K
	R871	VE-30018085	VAR CAP.	510V K

TRANSF

⚠	Symbol No.	Part No.	Part Name	Description
	TR100	VE-30006743	HORIZONTAL DRIVER TRANSF.	
⚠	TR101	VE-30017521	FB TRANSF.	
⚠	TR801	VE-30019205	SMPS TRANSF.	

COIL

Symbol No.	Part No.	Part Name	Description
L100	VE-30007771	FIXED COIL	100UH
L101	VE-30007757	EW INJECTION COIL	6MHZ

⚠	Symbol No.	Part No.	Part Name	Description
COIL				
	L109	VE-30001996	FIXED COIL	22UH
	L413	VE-30019475	FIXED COIL	47UH
	L414	VE-30019475	FIXED COIL	47UH
	L803	VE-30001992	FIXED COIL	10UH
	L804	VE-30011450	FIXED COIL	22UH
	L809	VE-30018547	FIXED COIL	10UH
	L811	VE-30018547	FIXED COIL	10UH
	L951	VE-30001979	FIXED COIL	1UH
DIODE				
	D102	VE-30007760	SMD ZENER DIODE	
	D103	VE-30007763	SMD ZENER DIODE	
	D104	VE-30007678	DIODE	6A/1500V 100A
	D105	VE-30007768	DIODE	5A/600V 55A
	D106	VE-30001291	DIODE	1A/800V 30A
	D107	VE-30001291	DIODE	1A/800V 30A
	D108	VE-30001299	DIODE	3A/400V 150A
	D109	VE-30001299	DIODE	3A/400V 150A
	D110	VE-30001291	DIODE	1A/800V 30A
	D111	VE-30001288	DIODE	2A/200V 50A
	D112	VE-30007763	SMD ZENER DIODE	
	D113	VE-30001377	UZT ZENER DIODE	33V
	D114	VE-30001285	SMD DIODE	
	D117	VE-30001285	SMD DIODE	
	D118	VE-30001285	SMD DIODE	
	D119	VE-30001285	SMD DIODE	
	D120	VE-30001318	DIODE	1A/800V 20A
	D123	VE-30001318	DIODE	1A/800V 20A
	D124	VE-30009699	SMD ZENER DIODE	
	D125	VE-30001291	DIODE	1A/800V 30A
	D127	VE-30001285	SMD DIODE	
	D128	VE-30001285	SMD DIODE	
	D201	VE-30007763	SMD ZENER DIODE	
	D202	VE-30009699	SMD ZENER DIODE	
	D203	VE-30009699	SMD ZENER DIODE	
	D204	VE-30018735	SMD ZENER DIODE	15V
	D205	VE-30018735	SMD ZENER DIODE	15V
	D206	VE-30018735	SMD ZENER DIODE	15V
	D207	VE-30009699	SMD ZENER DIODE	
	D404	VE-30001284	DIODE	0.15A/100V 0.5A
	D801	VE-30001318	DIODE	1A/800V 20A
	D802	VE-30001323	DIODE	2A/800V 70A
	D803	VE-30009366	DIODE	3A/200V 150A
	D804	VE-30009366	DIODE	3A/200V 150A
	D805	VE-30007681	DIODE	3A/800V 150A
	D806	VE-30001344	ZENER DIODE	6.2V 1/2W
	D807	VE-30001285	SMD DIODE	
	D808	VE-30001288	DIODE	2A/200V 50A
	D809	VE-30001285	SMD DIODE	
	D810	VE-20108354	BRIDGE DIODE	4A/1000V 150A(FORMLU)
	D811	VE-30009366	DIODE	3A/200V 150A
	D812	VE-30001329	DIODE	1A/1000V 30A
	D813	VE-30006691	SMD ZENER DIODE	3.3V
	D814	VE-30001318	DIODE	1A/800V 20A
	D815	VE-30001318	DIODE	1A/800V 20A
	D818	VE-30001318	DIODE	1A/800V 20A
	D819	VE-30001285	SMD DIODE	
	D820	VE-30001285	SMD DIODE	
	D821	VE-30001285	SMD DIODE	
	D822	VE-30009699	SMD ZENER DIODE	
	D823	VE-30001285	SMD DIODE	
	D824	VE-30009366	DIODE	3A/200V 150A
	D826	VE-30001284	DIODE	0.15A/100V 0.5A
	D827	VE-30007763	SMD ZENER DIODE	
	D829	VE-30001318	DIODE	1A/800V 20A
	D830	VE-30001285	SMD DIODE	
	D831	VE-30001329	DIODE	1A/1000V 30A
	D951	VE-30001285	SMD DIODE	
	D961	VE-30012411	SMD DIODE	
	D962	VE-30001285	SMD DIODE	
	D963	VE-30001285	SMD DIODE	
		VE-30007758	BRIDGE DIODE	4A/1000V 150A
TRANSISTOR				
	Q100	VE-30018627	NMOS TRANSISTOR	
⚠	Q101	VE-30016686	TRANSISTOR	H.OUT
	Q102	VE-30001458	SMD TRANSISTOR	
	Q103	VE-30001458	SMD TRANSISTOR	
	Q104	VE-30007799	TRANSISTOR	
	Q105	VE-30001454	TRANSISTOR	
	Q106	VE-30001458	SMD TRANSISTOR	
	Q108	VE-30001457	SMD TRANSISTOR	
	Q112	VE-30001457	SMD TRANSISTOR	
	Q113	VE-30001457	SMD TRANSISTOR	
	Q114	VE-30001457	SMD TRANSISTOR	
	Q115	VE-30001458	SMD TRANSISTOR	
	Q117	VE-30001458	SMD TRANSISTOR	
	Q200	VE-30001457	SMD TRANSISTOR	

⚠	Symbol No.	Part No.	Part Name	Description
TRANSISTOR				
	Q400	VE-30001458	SMD TRANSISTOR	
	Q801	VE-30001454	TRANSISTOR	
	Q802	VE-20070614	HE.ASSY	
	Q803	VE-30001454	TRANSISTOR	
	Q804	VE-30001457	SMD TRANSISTOR	
	Q805	VE-30001454	TRANSISTOR	
	Q806	VE-30001428	TRANSISTOR	
	Q807	VE-30001457	SMD TRANSISTOR	
	Q808	VE-30001457	SMD TRANSISTOR	
	Q810	VE-30001454	TRANSISTOR	
	Q811	VE-30001457	SMD TRANSISTOR	
	Q812	VE-30001458	SMD TRANSISTOR	
	Q813	VE-30007802	TRANSISTOR	
	Q814	VE-30001455	TRANSISTOR	
	Q817	VE-30001384	TRANSISTOR	
	Q950	VE-30001457	SMD TRANSISTOR	
	Q952	VE-30001457	SMD TRANSISTOR	
IC				
	IC100	VE-30013687	I.C.	
	IC401	VE-30018422	I.C.	
	IC402	VE-30018422	I.C.	
⚠	IC801	VE-30015087	I.C.	
	IC803	VE-30001500	I.C.	
	IC804	VE-30011968	I.C.	
	IC812	VE-30019617	I.C.	
	IC954	VE-30021083	I.C.	
	Q116	VE-30001506	I.C.	
	Q815	VE-30001506	I.C.	
	Q816	VE-30001506	I.C.	
OTHERS				
	J130	VE-30006712	FERRITE BEAD	
	L105	VE-30006712	FERRITE BEAD	
	L106	VE-30006712	FERRITE BEAD	
	L213	VE-30013413	FERRITE BEAD	
	L214	VE-30013413	FERRITE BEAD	
	L215	VE-30013413	FERRITE BEAD	
	L216	VE-30013413	FERRITE BEAD	
	L217	VE-30013413	FERRITE BEAD	
	L218	VE-30013413	FERRITE BEAD	
	L219	VE-30013413	FERRITE BEAD	
	L220	VE-30013413	FERRITE BEAD	
	L224	VE-30013413	FERRITE BEAD	
	L225	VE-30013413	FERRITE BEAD	
	L226	VE-30013413	FERRITE BEAD	
	L228	VE-30013413	FERRITE BEAD	
	L417	VE-30006712	FERRITE BEAD	
	L418	VE-30006712	FERRITE BEAD	
	L802	VE-30001971	FERRITE BEAT	
⚠	L805	VE-30018078	LINE FILTER	
	L999	VE-30013413	FERRITE BEAD	
⚠	RL801	VE-30002183	RELAY	
⚠	TH801	VE-30001270	PTC	9 OHM
⚠	TU200	VE-30009637	TUNER	
	X951	VE-30002851	XTAL	4MHZ
	Z950	VE-30001692	SAW FILTER	
	Z951	VE-30012545	SAW FILTER	

FEATURE BOX PWB BOARD ASSY (VE-20120497)

⚠	Symbol No.	Part No.	Part Name	Description
RESISTOR				
	R400	VE-30012641	SMD R	1/16W 10K J
	R401	VE-30012641	SMD R	1/16W 10K J
	R402	VE-30012510	SMD R	1/16W 100R J
	R403	VE-30012510	SMD R	1/16W 100R J
	R404	VE-30012692	SMD R	1/16W 4.7K J
	R405	VE-30012510	SMD R	1/16W 100R J
	R406	VE-30012510	SMD R	1/16W 100R J
	R407	VE-30012657	SMD R	1/16W 1K J
	R408	VE-30012657	SMD R	1/16W 1K J
	R409	VE-30012657	SMD R	1/16W 1K J
	R410	VE-30012657	SMD R	1/16W 1K J
	R417	VE-30012692	SMD R	1/16W 4.7K J
	R418	VE-30012692	SMD R	1/16W 4.7K J
	R419	VE-30012692	SMD R	1/16W 4.7K J
	R420	VE-30012692	SMD R	1/16W 4.7K J
	R421	VE-30012510	SMD R	1/16W 100R J
	R422	VE-30012510	SMD R	1/16W 100R J

RESISTOR

⚠	Symbol No.	Part No.	Part Name	Description
	R431	VE-30012657	SMD R	1/16W 1K J
	R432	VE-30012657	SMD R	1/16W 1K J
	R433	VE-30012657	SMD R	1/16W 1K J
	R434	VE-30012657	SMD R	1/16W 1K J
	R435	VE-30012657	SMD R	1/16W 1K J
	R436	VE-30012657	SMD R	1/16W 1K J
	R437	VE-30012657	SMD R	1/16W 1K J
	R438	VE-30012657	SMD R	1/16W 1K J
	R439	VE-30012657	SMD R	1/16W 1K J
	R601	VE-30012510	SMD R	1/16W 100R J
	R602	VE-30012688	SMD R	1/16W 390R J
	R603	VE-30012982	SMD R	1/16W 10R J
	R604	VE-30014128	SMD R	1/16W 33R J
	R605	VE-30012668	SMD R	1/16W 220R J
	R606	VE-30012657	SMD R	1/16W 1K J
	R620	VE-30012713	SMD R	1/16W 75R J
	R621	VE-30012713	SMD R	1/16W 75R J
	R622	VE-30012641	SMD R	1/16W 10K J
	R623	VE-30012641	SMD R	1/16W 10K J
	R624	VE-30012713	SMD R	1/16W 75R J
	R625	VE-30012669	SMD R	1/16W 22K J
	R626	VE-30012657	SMD R	1/16W 1K J
	R629	VE-30012510	SMD R	1/16W 100R J
	R630	VE-30012688	SMD R	1/16W 390R J
	R631	VE-30012982	SMD R	1/16W 10R J
	R632	VE-30012713	SMD R	1/16W 75R J
	R633	VE-30012668	SMD R	1/16W 220R J
	R634	VE-30012657	SMD R	1/16W 1K J
	R635	VE-30012510	SMD R	1/16W 100R J
	R636	VE-30012688	SMD R	1/16W 390R J
	R637	VE-30012982	SMD R	1/16W 10R J
	R638	VE-30012713	SMD R	1/16W 75R J
	R639	VE-30012668	SMD R	1/16W 220R J
	R640	VE-30012657	SMD R	1/16W 1K J
	R641	VE-30012510	SMD R	1/16W 100R J
	R642	VE-30012688	SMD R	1/16W 390R J
	R643	VE-30012982	SMD R	1/16W 10R J
	R644	VE-30012713	SMD R	1/16W 75R J
	R645	VE-30012668	SMD R	1/16W 220R J
	R646	VE-30012657	SMD R	1/16W 1K J
	R647	VE-30012669	SMD R	1/16W 22K J
	R648	VE-30012673	SMD R	1/16W 270R J
	R649	VE-30012982	SMD R	1/16W 10R J
	R650	VE-30012661	SMD R	1/16W 2.4K J
	R651	VE-30012659	SMD R	1/16W 2.2K J
	R652	VE-30012641	SMD R	1/16W 10K J
	R653	VE-30012692	SMD R	1/16W 4.7K J
	R654	VE-30012641	SMD R	1/16W 10K J
	R655	VE-30012641	SMD R	1/16W 10K J
	R656	VE-30012650	SMD R	1/16W 15K J
	R657	VE-30012650	SMD R	1/16W 15K J
	R658	VE-30012657	SMD R	1/16W 1K J
	R659	VE-30012641	SMD R	1/16W 10K J
	R661	VE-30012657	SMD R	1/16W 1K J
	R662	VE-30012982	SMD R	1/16W 10R J
	R663	VE-30012692	SMD R	1/16W 4.7K J
	R683	VE-30012641	SMD R	1/16W 10K J
	R688	VE-30012713	SMD R	1/16W 75R J
	R689	VE-30012510	SMD R	1/16W 100R J
	R690	VE-30012510	SMD R	1/16W 100R J
	R691	VE-30012510	SMD R	1/16W 100R J
	R692	VE-30012510	SMD R	1/16W 100R J
	R693	VE-30012510	SMD R	1/16W 100R J
	R694	VE-30012510	SMD R	1/16W 100R J
	R696	VE-30012506	SMD R	1/16W 1.5K J
	R697	VE-30012719	SMD R	1/16W 910R J
	R699	VE-30012713	SMD R	1/16W 75R J
	R700	VE-30018409	SARRAY R	1/16W 330R J
	R701	VE-30018409	SARRAY R	1/16W 330R J
	R702	VE-30018409	SARRAY R	1/16W 330R J
	R703	VE-30018409	SARRAY R	1/16W 330R J
	R704	VE-30018409	SARRAY R	1/16W 330R J
	R705	VE-30018409	SARRAY R	1/16W 330R J
	R706	VE-30018409	SARRAY R	1/16W 330R J
	R707	VE-30018409	SARRAY R	1/16W 330R J
	R708	VE-30012675	SMD R	1/16W 2K J
	R720	VE-30012657	SMD R	1/16W 1K J
	R721	VE-30012669	SMD R	1/16W 22K J
	R752	VE-30012677	SMD R	1/16W 3.3K J
	R753	VE-30012677	SMD R	1/16W 3.3K J
	R754	VE-30012692	SMD R	1/16W 4.7K J
	R755	VE-30012692	SMD R	1/16W 4.7K J
	R756	VE-30012679	SMD R	1/16W 3.9K J
	R757	VE-30012679	SMD R	1/16W 3.9K J
	R758	VE-30012650	SMD R	1/16W 15K J
	R759	VE-30012650	SMD R	1/16W 15K J
	R760	VE-30012510	SMD R	1/16W 100R J
	R761	VE-30012641	SMD R	1/16W 10K J
	R762	VE-30012510	SMD R	1/16W 100R J
	R763	VE-30012641	SMD R	1/16W 10K J
	R764	VE-30012659	SMD R	1/16W 2.2K J
	R765	VE-30012659	SMD R	1/16W 2.2K J
	R766	VE-30012695	SMD R	1/16W 470R J
	R767	VE-30012695	SMD R	1/16W 470R J

⚠	Symbol No.	Part No.	Part Name	Description
	R771	VE-30012657	SMD R	1/16W 1K J
	R772	VE-30012657	SMD R	1/16W 1K J
	R773	VE-30012696	SMD R	1/16W 47K J
	R774	VE-30012696	SMD R	1/16W 47K J
	R775	VE-30012696	SMD R	1/16W 47K J
	R776	VE-30012696	SMD R	1/16W 47K J
	R777	VE-30012510	SMD R	1/16W 100R J
	R778	VE-30012510	SMD R	1/16W 100R J
	R779	VE-30012641	SMD R	1/16W 10K J
	R780	VE-30012641	SMD R	1/16W 10K J
	R781	VE-30012641	SMD R	1/16W 10K J
	R782	VE-30012641	SMD R	1/16W 10K J
	R785	VE-30012692	SMD R	1/16W 4.7K J
	R786	VE-30012509	SMD R	1/16W 100K J
	R787	VE-30012510	SMD R	1/16W 100R J
	R788	VE-30012641	SMD R	1/16W 10K J
	R789	VE-30012657	SMD R	1/16W 1K J
	R790	VE-30012657	SMD R	1/16W 1K J
	R791	VE-30012657	SMD R	1/16W 1K J
	R792	VE-30012657	SMD R	1/16W 1K J
	R793	VE-30012657	SMD R	1/16W 1K J
	R794	VE-30014022	SMD R	1/16W 47R J
	R795	VE-30012668	SMD R	1/16W 220R J
	R796	VE-30014022	SMD R	1/16W 47R J
	R797	VE-30012657	SMD R	1/16W 1K J
	R798	VE-30012692	SMD R	1/16W 4.7K J
	R801	VE-30012641	SMD R	1/16W 10K J
	R802	VE-30012641	SMD R	1/16W 10K J
	R807	VE-30012657	SMD R	1/16W 1K J
	R808	VE-30018409	SARRAY R	1/16W 330R J
	R809	VE-30018409	SARRAY R	1/16W 330R J
	R810	VE-30018409	SARRAY R	1/16W 330R J
	R811	VE-30018409	SARRAY R	1/16W 330R J
	R812	VE-30018409	SARRAY R	1/16W 330R J
	R813	VE-30018409	SARRAY R	1/16W 330R J
	R814	VE-30018409	SARRAY R	1/16W 330R J
	R816	VE-30012641	SMD R	1/16W 10K J
	R817	VE-30012692	SMD R	1/16W 4.7K J
	R818	VE-30012657	SMD R	1/16W 1K J
	R819	VE-30012650	SMD R	1/16W 15K J
	R820	VE-30012679	SMD R	1/16W 3.9K J
	R821	VE-30012692	SMD R	1/16W 4.7K J
	R822	VE-30012641	SMD R	1/16W 10K J
	R823	VE-30012692	SMD R	1/16W 4.7K J
	R824	VE-30012692	SMD R	1/16W 4.7K J
	R825	VE-30012641	SMD R	1/16W 10K J
	R826	VE-30012641	SMD R	1/16W 10K J
	R827	VE-30012696	SMD R	1/16W 47K J
	R828	VE-30012696	SMD R	1/16W 47K J
	R829	VE-30012510	SMD R	1/16W 100R J
	R830	VE-30012641	SMD R	1/16W 10K J
	R831	VE-30012692	SMD R	1/16W 4.7K J
	R832	VE-30012692	SMD R	1/16W 4.7K J
	R833	VE-30012692	SMD R	1/16W 4.7K J
	R834	VE-30012692	SMD R	1/16W 4.7K J
	R835	VE-30012510	SMD R	1/16W 100R J
	R836	VE-30012641	SMD R	1/16W 10K J
	R837	VE-30012641	SMD R	1/16W 10K J
	R838	VE-30012692	SMD R	1/16W 4.7K J
	R840	VE-30012659	SMD R	1/16W 2.2K J
	R841	VE-30013001	SMD R	1/16W 1K F
	R842	VE-30012692	SMD R	1/16W 4.7K J
	R860	VE-30012713	SMD R	1/16W 75R J
	R885	VE-30012713	SMD R	1/16W 75R J
	R886	VE-30012713	SMD R	1/16W 75R J
	R889	VE-30012510	SMD R	1/16W 100R J
	R890	VE-30012510	SMD R	1/16W 100R J
	R891	VE-30012713	SMD R	1/16W 75R J
	R892	VE-30012982	SMD R	1/16W 10R J
	R893	VE-30012982	SMD R	1/16W 10R J
	R894	VE-30012982	SMD R	1/16W 10R J
	R895	VE-30012695	SMD R	1/16W 470R J
	R896	VE-30012641	SMD R	1/16W 10K J
	R897	VE-30012692	SMD R	1/16W 4.7K J
	R898	VE-30012695	SMD R	1/16W 470R J
	R899	VE-30012641	SMD R	1/16W 10K J
	R900	VE-30012695	SMD R	1/16W 470R J
	R901	VE-30012641	SMD R	1/16W 10K J
	R902	VE-30012692	SMD R	1/16W 4.7K J
	R903	VE-30012692	SMD R	1/16W 4.7K J
	R904	VE-30012713	SMD R	1/16W 75R J
	R905	VE-30012713	SMD R	1/16W 75R J
	R906	VE-30012713	SMD R	1/16W 75R J
	R907	VE-30012982	SMD R	1/16W 10R J
	R908	VE-30012695	SMD R	1/16W 470R J
	R909	VE-30012641	SMD R	1/16W 10K J
	R910	VE-30012692	SMD R	1/16W 4.7K J
	R911	VE-30012713	SMD R	1/16W 75R J
	R913	VE-30012509	SMD R	1/16W 100K J
	R914	VE-30012509	SMD R	1/16W 100K J
	R917	VE-30012641	SMD R	1/16W 10K J
	R918	VE-30012669	SMD R	1/16W 22K J
	R919	VE-30012657	SMD R	1/16W 1K J
	R920	VE-30012657	SMD R	1/16W 1K J

⚠	Symbol No.	Part No.	Part Name	Description
	RESISTOR			
	R921	VE-30012982	SMD R	1/16W 10R J
	R927	VE-30012982	SMD R	1/16W 10R J
	R928	VE-30012695	SMD R	1/16W 470R J
	R929	VE-30012641	SMD R	1/16W 10K J
	R930	VE-30012692	SMD R	1/16W 4.7K J
	R931	VE-30012713	SMD R	1/16W 75R J
	R932	VE-30012713	SMD R	1/16W 75R J
	R933	VE-30012713	SMD R	1/16W 75R J
	R934	VE-30012713	SMD R	1/16W 75R J
	R935	VE-30012713	SMD R	1/16W 75R J
	R936	VE-30012713	SMD R	1/16W 75R J
	R937	VE-30012713	SMD R	1/16W 75R J
	R938	VE-30014128	SMD R	1/16W 33R J
	R942	VE-30012713	SMD R	1/16W 75R J
	R943	VE-30012713	SMD R	1/16W 75R J
	R944	VE-30012713	SMD R	1/16W 75R J
	R945	VE-30012713	SMD R	1/16W 75R J
	R946	VE-30012713	SMD R	1/16W 75R J
	R947	VE-30012713	SMD R	1/16W 75R J
	R948	VE-30012713	SMD R	1/16W 75R J
	R949	VE-30012510	SMD R	1/16W 100R J
	R951	VE-30012713	SMD R	1/16W 75R J
	CAPACITOR			
	C400	VE-30016654	SMD CAP.	100NF 16V K R
	C402	VE-30000352	EL CAP.	100UF 16V M
	C404	VE-30012569	SMD CAP.	33PF 50V J
	C405	VE-30012569	SMD CAP.	33PF 50V J
	C406	VE-30000315	SMD CAP.	220NF 25V Z
	C407	VE-30000315	SMD CAP.	220NF 25V Z
	C408	VE-30000315	SMD CAP.	220NF 25V Z
	C409	VE-30000315	SMD CAP.	220NF 25V Z
	C410	VE-30012576	SMD CAP.	56PF 50V J CH
	C411	VE-30016654	SMD CAP.	100NF 16V K R
	C412	VE-30000393	EL CAP.	3.3UF 50V M
	C413	VE-30000345	EL CAP.	10UF 50V M
	C414	VE-30000345	EL CAP.	10UF 50V M
	C415	VE-30012581	SMD CAP.	1NF 50V K R
	C416	VE-30012581	SMD CAP.	1NF 50V K R
	C417	VE-30012565	SMD CAP.	1.8PF 50V J CH
	C418	VE-30012565	SMD CAP.	1.8PF 50V J CH
	C419	VE-30012581	SMD CAP.	1NF 50V K R
	C420	VE-30012581	SMD CAP.	1NF 50V K R
	C421	VE-30012581	SMD CAP.	1NF 50V K R
	C422	VE-30012576	SMD CAP.	56PF 50V J CH
	C423	VE-30016654	SMD CAP.	100NF 16V K R
	C424	VE-30016654	SMD CAP.	100NF 16V K R
	C425	VE-30012581	SMD CAP.	1NF 50V K R
	C436	VE-30000371	EL CAP.	22UF 50V M
	C437	VE-30000371	EL CAP.	22UF 50V M
	C438	VE-30000371	EL CAP.	22UF 50V M
	C439	VE-30000371	EL CAP.	22UF 50V M
	C440	VE-30012568	SMD CAP.	270PF 50V J
	C441	VE-30012572	SMD CAP.	390PF 50V J
	C446	VE-30012581	SMD CAP.	1NF 50V K R
	C447	VE-30012581	SMD CAP.	1NF 50V K R
	C448	VE-30000345	EL CAP.	10UF 50V M
	C449	VE-30016654	SMD CAP.	100NF 16V K R
	C450	VE-30000345	EL CAP.	10UF 50V M
	C451	VE-30000315	SMD CAP.	220NF 25V Z
	C452	VE-30000315	SMD CAP.	220NF 25V Z
	C453	VE-30000315	SMD CAP.	220NF 25V Z
	C454	VE-30000315	SMD CAP.	220NF 25V Z
	C455	VE-30012581	SMD CAP.	1NF 50V K R
	C456	VE-30012581	SMD CAP.	1NF 50V K R
	C457	VE-30012581	SMD CAP.	1NF 50V K R
	C458	VE-30012581	SMD CAP.	1NF 50V K R
	C461	VE-30012589	SMD CAP.	4.7NF 50V K
	C462	VE-30012589	SMD CAP.	4.7NF 50V K
	C465	VE-30012581	SMD CAP.	1NF 50V K R
	C466	VE-30012581	SMD CAP.	1NF 50V K R
	C471	VE-30012581	SMD CAP.	1NF 50V K R
	C472	VE-30000444	CER CAP.	470PF 1KV KB
	C473	VE-30012589	SMD CAP.	4.7NF 50V K
	C474	VE-30012589	SMD CAP.	4.7NF 50V K
	C479	VE-30000371	EL CAP.	22UF 50V M
	C480	VE-30000371	EL CAP.	22UF 50V M
	C600	VE-30016654	SMD CAP.	100NF 16V K R
	C601	VE-30012613	SMD CAP.	3.3PF 50V C CH
	C602	VE-30012613	SMD CAP.	3.3PF 50V C CH
	C604	VE-30000068	MKT CAP.	1NF 63V K
	C605	VE-30012582	SMD CAP.	10NF 50V K R
	C607	VE-30016654	SMD CAP.	100NF 16V K R
	C608	VE-30016654	SMD CAP.	100NF 16V K R
	C609	VE-30016654	SMD CAP.	100NF 16V K R
	C610	VE-30016654	SMD CAP.	100NF 16V K R
	C611	VE-30016654	SMD CAP.	100NF 16V K R
	C612	VE-30012568	SMD CAP.	270PF 50V J
	C613	VE-30012577	SMD CAP.	560PF 50V J
	C614	VE-30012585	SMD CAP.	2.2NF 50V K R
	C615	VE-30012568	SMD CAP.	270PF 50V J

⚠	Symbol No.	Part No.	Part Name	Description
	CAPACITOR			
	C616	VE-30012577	SMD CAP.	560PF 50V J
	C617	VE-30012585	SMD CAP.	2.2NF 50V K R
	C618	VE-30012608	SMD CAP.	27PF 50V J CH
	C619	VE-30012608	SMD CAP.	27PF 50V J CH
	C620	VE-30012568	SMD CAP.	270PF 50V J
	C621	VE-30012577	SMD CAP.	560PF 50V J
	C622	VE-30012585	SMD CAP.	2.2NF 50V K R
	C623	VE-30012581	SMD CAP.	1NF 50V K R
	C625	VE-30016654	SMD CAP.	100NF 16V K R
	C626	VE-30016654	SMD CAP.	100NF 16V K R
	C629	VE-30012582	SMD CAP.	10NF 50V K R
	C630	VE-30012582	SMD CAP.	10NF 50V K R
	C631	VE-30012582	SMD CAP.	10NF 50V K R
	C632	VE-30016654	SMD CAP.	100NF 16V K R
	C633	VE-30012582	SMD CAP.	10NF 50V K R
	C634	VE-30012582	SMD CAP.	10NF 50V K R
	C635	VE-30012582	SMD CAP.	10NF 50V K R
	C636	VE-30012585	SMD CAP.	2.2NF 50V K R
	C637	VE-30012577	SMD CAP.	560PF 50V J
	C638	VE-30000345	EL CAP.	10UF 50V M
	C639	VE-30000345	EL CAP.	10UF 50V M
	C640	VE-30000345	EL CAP.	10UF 50V M
	C641	VE-30000345	EL CAP.	10UF 50V M
	C642	VE-30000109	MKT CAP.	470NF 63V J
	C643	VE-30000109	MKT CAP.	470NF 63V J
	C644	VE-30000345	EL CAP.	10UF 50V M
	C645	VE-30000345	EL CAP.	10UF 50V M
	C646	VE-30012568	SMD CAP.	270PF 50V J
	C647	VE-30012585	SMD CAP.	2.2NF 50V K R
	C648	VE-30012577	SMD CAP.	560PF 50V J
	C650	VE-30012568	SMD CAP.	270PF 50V J
	C651	VE-30012577	SMD CAP.	560PF 50V J
	C652	VE-30012585	SMD CAP.	2.2NF 50V K R
	C653	VE-30012585	SMD CAP.	2.2NF 50V K R
	C654	VE-30012577	SMD CAP.	560PF 50V J
	C655	VE-30012568	SMD CAP.	270PF 50V J
	C656	VE-30012568	SMD CAP.	270PF 50V J
	C657	VE-30012577	SMD CAP.	560PF 50V J
	C658	VE-30012585	SMD CAP.	2.2NF 50V K R
	C659	VE-30000345	EL CAP.	10UF 50V M
	C660	VE-30000345	EL CAP.	10UF 50V M
	C661	VE-30012590	SMD CAP.	47NF 50V K
	C662	VE-30012583	SMD CAP.	1.5NF 50V K
	C663	VE-30000393	EL CAP.	3.3UF 50V M
	C664	VE-30016654	SMD CAP.	100NF 16V K R
	C665	VE-30000345	EL CAP.	10UF 50V M
	C666	VE-30012582	SMD CAP.	10NF 50V K R
	C668	VE-30012559	SMD CAP.	10PF 50V D COG
	C670	VE-30012570	SMD CAP.	330PF 50V J
	C671	VE-30000371	EL CAP.	22UF 50V M
	C672	VE-30016654	SMD CAP.	100NF 16V K R
	C673	VE-30016654	SMD CAP.	100NF 16V K R
	C674	VE-30000371	EL CAP.	22UF 50V M
	C675	VE-30012609	SMD CAP.	68NF 50V K
	C676	VE-30012583	SMD CAP.	1.5NF 50V K
	C677	VE-30012590	SMD CAP.	47NF 50V K
	C678	VE-30016654	SMD CAP.	100NF 16V K R
	C679	VE-30012572	SMD CAP.	390PF 50V J
	C680	VE-30000315	SMD CAP.	220NF 25V Z
	C681	VE-30012590	SMD CAP.	47NF 50V K
	C682	VE-30012572	SMD CAP.	390PF 50V J
	C683	VE-30000315	SMD CAP.	220NF 25V Z
	C684	VE-30012583	SMD CAP.	1.5NF 50V K
	C685	VE-30012583	SMD CAP.	1.5NF 50V K
	C686	VE-30012583	SMD CAP.	1.5NF 50V K
	C687	VE-30012609	SMD CAP.	68NF 50V K
	C688	VE-30000109	MKT CAP.	470NF 63V J
	C689	VE-30000345	EL CAP.	10UF 50V M
	C690	VE-30000345	EL CAP.	10UF 50V M
	C691	VE-30012590	SMD CAP.	47NF 50V K
	C692	VE-30016654	SMD CAP.	100NF 16V K R
	C693	VE-30012572	SMD CAP.	390PF 50V J
	C694	VE-30000315	SMD CAP.	220NF 25V Z
	C695	VE-30012609	SMD CAP.	68NF 50V K
	C697	VE-30000345	EL CAP.	10UF 50V M
	C699	VE-30012574	SMD CAP.	470PF 50V J
	C700	VE-30012573	SMD CAP.	47PF 50V J
	C720	VE-30016654	SMD CAP.	100NF 16V K R
	C722	VE-30000352	EL CAP.	100UF 16V M
	C723	VE-30000352	EL CAP.	100UF 16V M
	C724	VE-30016654	SMD CAP.	100NF 16V K R
	C726	VE-30000371	EL CAP.	22UF 50V M
	C727	VE-30016654	SMD CAP.	100NF 16V K R
	C728	VE-30016654	SMD CAP.	100NF 16V K R
	C729	VE-30000371	EL CAP.	22UF 50V M
	C730	VE-30016654	SMD CAP.	100NF 16V K R
	C731	VE-30000362	EL CAP.	1UF 50V M
	C732	VE-30016654	SMD CAP.	100NF 16V K R
	C733	VE-30016654	SMD CAP.	100NF 16V K R
	C734	VE-30016654	SMD CAP.	100NF 16V K R
	C735	VE-30000362	EL CAP.	1UF 50V M
	C736	VE-30012569	SMD CAP.	33PF 50V J
	C737	VE-30012569	SMD CAP.	33PF 50V J
	C738	VE-30000371	EL CAP.	22UF 50V M

CAPACITOR

⚠	Symbol No.	Part No.	Part Name	Description
	C739	VE-30016654	SMD CAP.	100NF 16V K R
	C740	VE-30016654	SMD CAP.	100NF 16V K R
	C741	VE-30016654	SMD CAP.	100NF 16V K R
	C742	VE-30016654	SMD CAP.	100NF 16V K R
	C744	VE-30016654	SMD CAP.	100NF 16V K R
	C745	VE-30016654	SMD CAP.	100NF 16V K R
	C746	VE-30012568	SMD CAP.	27OPF 50V J
	C748	VE-30000345	EL CAP.	10UF 50V M
	C749	VE-30012580	SMD CAP.	820PF 50V J
	C750	VE-30016654	SMD CAP.	100NF 16V K R
	C752	VE-30016654	SMD CAP.	100NF 16V K R
	C753	VE-30000413	EL CAP.	4.7UF 50V M
	C754	VE-30000396	EL CAP.	47UF 16V M
	C755	VE-30000362	EL CAP.	1UF 50V M
	C842	VE-30016126	SMD CAP.	22ONF 16V K R
	C873	VE-30000352	EL CAP.	100UF 16V M
	C875	VE-30012569	SMD CAP.	33PF 50V J
	C876	VE-30012569	SMD CAP.	33PF 50V J
	C878	VE-30000074	MKT CAP.	100NF 63V J
	C879	VE-30000074	MKT CAP.	100NF 63V J
	C881	VE-30000074	MKT CAP.	100NF 63V J
	C882	VE-30000074	MKT CAP.	100NF 63V J
	C883	VE-30016654	SMD CAP.	100NF 16V K R
	C884	VE-30016654	SMD CAP.	100NF 16V K R
	C885	VE-30016654	SMD CAP.	100NF 16V K R
	C886	VE-30016654	SMD CAP.	100NF 16V K R
	C887	VE-30012570	SMD CAP.	330PF 50V J
	C888	VE-30000315	SMD CAP.	220NF 25V Z
	C889	VE-30012570	SMD CAP.	330PF 50V J
	C890	VE-30000315	SMD CAP.	220NF 25V Z
	C891	VE-30012570	SMD CAP.	330PF 50V J
	C892	VE-30000315	SMD CAP.	220NF 25V Z
	C893	VE-30016654	SMD CAP.	100NF 16V K R
	C895	VE-30016654	SMD CAP.	100NF 16V K R
	C897	VE-30016654	SMD CAP.	100NF 16V K R
	C898	VE-30016654	SMD CAP.	100NF 16V K R
	C903	VE-30012570	SMD CAP.	330PF 50V J
	C904	VE-30012570	SMD CAP.	330PF 50V J
	C905	VE-30012570	SMD CAP.	330PF 50V J
	C906	VE-30012559	SMD CAP.	10PF 50V D COG
	C907	VE-30000315	SMD CAP.	220NF 25V Z
	C908	VE-30000315	SMD CAP.	220NF 25V Z
	C909	VE-30000315	SMD CAP.	220NF 25V Z
	C912	VE-30000074	MKT CAP.	100NF 63V J

COIL

⚠	Symbol No.	Part No.	Part Name	Description
	L402	VE-30017143	SMD COIL	22UH
	L403	VE-30017143	SMD COIL	22UH
	L404	VE-30017143	SMD COIL	22UH
	L405	VE-30017143	SMD COIL	22UH
	L407	VE-30017143	SMD COIL	22UH
	L408	VE-30017143	SMD COIL	22UH
	L412	VE-30017143	SMD COIL	22UH
	L413	VE-30017143	SMD COIL	22UH
	L414	VE-30017143	SMD COIL	22UH
	L415	VE-30017143	SMD COIL	22UH
	L416	VE-30017143	SMD COIL	22UH
	L417	VE-30017143	SMD COIL	22UH
	L600	VE-30017143	SMD COIL	22UH
	L720	VE-30017143	SMD COIL	22UH
	L721	VE-30018093	SMD COIL	3.3uH
	L722	VE-30018093	SMD COIL	3.3uH
	L723	VE-30018093	SMD COIL	3.3uH
	L724	VE-30017143	SMD COIL	22UH
	L726	VE-30018093	SMD COIL	3.3uH
	L851	VE-30018093	SMD COIL	3.3uH
	L852	VE-30018093	SMD COIL	3.3uH
	L853	VE-30018093	SMD COIL	3.3uH
	L854	VE-30018093	SMD COIL	3.3uH
	L855	VE-30018093	SMD COIL	3.3uH
	L856	VE-30018093	SMD COIL	3.3uH
	L857	VE-30018093	SMD COIL	3.3uH
	L858	VE-30018093	SMD COIL	3.3uH
	L859	VE-30018093	SMD COIL	3.3uH
	L862	VE-30017143	SMD COIL	22UH

DIODE

⚠	Symbol No.	Part No.	Part Name	Description
	D400	VE-30007761	SMD ZENER DIODE	
	D401	VE-30001285	SMD DIODE	
	D402	VE-30001285	SMD DIODE	
	D403	VE-30001285	SMD DIODE	
	D600	VE-30001285	SMD DIODE	
	D601	VE-30001285	SMD DIODE	
	D602	VE-30001285	SMD DIODE	
	D604	VE-30001285	SMD DIODE	
	D720	VE-30003720	SMD ZENER DIODE	3.3V
	D750	VE-30001285	SMD DIODE	
	D751	VE-30020535	SMD ZENER DIODE	
	D850	VE-30007760	SMD ZENER DIODE	

TRANSISTOR

⚠	Symbol No.	Part No.	Part Name	Description
	Q400	VE-30001458	SMD TRANSISTOR	
	Q401	VE-30001457	SMD TRANSISTOR	
	Q402	VE-30001457	SMD TRANSISTOR	
	Q403	VE-30001457	SMD TRANSISTOR	
	Q404	VE-30001457	SMD TRANSISTOR	
	Q600	VE-30001457	SMD TRANSISTOR	
	Q601	VE-30001457	SMD TRANSISTOR	
	Q602	VE-30001457	SMD TRANSISTOR	
	Q603	VE-30001457	SMD TRANSISTOR	
	Q605	VE-30001457	SMD TRANSISTOR	
	Q606	VE-30001457	SMD TRANSISTOR	
	Q607	VE-30001458	SMD TRANSISTOR	
	Q608	VE-30001458	SMD TRANSISTOR	
	Q609	VE-30001458	SMD TRANSISTOR	
	Q610	VE-30001457	SMD TRANSISTOR	
	Q611	VE-30001458	SMD TRANSISTOR	
	Q612	VE-30001457	SMD TRANSISTOR	
	Q613	VE-30001457	SMD TRANSISTOR	
	Q614	VE-30001457	SMD TRANSISTOR	
	Q720	VE-30001457	SMD TRANSISTOR	
	Q721	VE-30001457	SMD TRANSISTOR	
	Q722	VE-30001457	SMD TRANSISTOR	
	Q723	VE-30001457	SMD TRANSISTOR	
	Q724	VE-30001457	SMD TRANSISTOR	
	Q725	VE-30001457	SMD TRANSISTOR	
	Q726	VE-30001457	SMD TRANSISTOR	
	Q727	VE-30001457	SMD TRANSISTOR	
	Q728	VE-30001458	SMD TRANSISTOR	
	Q729	VE-30001457	SMD TRANSISTOR	
	Q730	VE-30001457	SMD TRANSISTOR	
	Q731	VE-30001457	SMD TRANSISTOR	
	Q732	VE-30001457	SMD TRANSISTOR	
	Q733	VE-30001457	SMD TRANSISTOR	
	Q734	VE-30001458	SMD TRANSISTOR	
	Q750	VE-30001457	SMD TRANSISTOR	
	Q751	VE-30001457	SMD TRANSISTOR	
	Q752	VE-30001457	SMD TRANSISTOR	
	Q850	VE-30001457	SMD TRANSISTOR	
	Q852	VE-30001457	SMD TRANSISTOR	
	Q856	VE-30001457	SMD TRANSISTOR	
	Q859	VE-30001457	SMD TRANSISTOR	
	Q861	VE-30001457	SMD TRANSISTOR	
	Q863	VE-30001457	SMD TRANSISTOR	

IC

⚠	Symbol No.	Part No.	Part Name	Description
	IC400	VE-30018263	I.C.	
	IC600	VE-30007668	I.C.	
	IC601	VE-30010349	I.C.	
	IC602	VE-30007739	I.C.	
	IC603	VE-30015059	I.C.	
	IC720	VE-20120551	I.C. (MEMORY) 24C32 A0472111122621212 12	
	IC721	VE-30016491	I.C.	
	IC722	VE-20136914	I.C. (MICOM) PR.IC.52-AK52B-IC27W401 J073	
	IC851	VE-30013686	I.C.	

OTHERS

⚠	Symbol No.	Part No.	Part Name	Description
	L406	VE-30001971	FERRITE BEAT	
	L411	VE-30001971	FERRITE BEAT	
	L418	VE-30001971	FERRITE BEAT	
	L601	VE-30006712	FERRITE BEAD	
	L602	VE-30001971	FERRITE BEAT	
	L850	VE-30001971	FERRITE BEAT	
	L861	VE-30001971	FERRITE BEAT	
	X400	VE-30001756	XTAL	18.432MHZ
	X600	VE-30008778	XTAL	20.25MHZ
	X601	VE-30008782	XTAL	5MHZ
	X720	VE-30006662	XTAL	6MHZ

CRT SOCKET PW BOARD ASSY (VE-20128380)

⚠	Symbol No.	Part No.	Part Name	Description
	RESISTOR			
	R900	VE-30000788	CF R	1/4W 6.8M J
	R901	VE-30000459	CF R	1/4W 100R J
	R902	VE-30000459	CF R	1/4W 100R J
	R903	VE-30000459	CF R	1/4W 100R J
	R904	VE-30000535	CF R	1/2W 150K J
	R905	VE-30000477	CF R	1/4W 100K J
	R906	VE-30000477	CF R	1/4W 100K J
	R907	VE-30020603	CC R	1W 1K K
	R908	VE-30020603	CC R	1W 1K K
	R909	VE-30000477	CF R	1/4W 100K J
	R910	VE-30020603	CC R	1W 1K K
	R911	VE-30000466	CF R	1/4W 1K J
	R912	VE-30000459	CF R	1/4W 100R J
	R913	VE-30000492	CF R	1/4W 120R J
	R914	VE-30000612	CF R	1/4W 2.4K J
	R915	VE-30000973	MF R	1/4W 3.9K F
	R916	VE-30000531	CF R	1/4W 15K J
	R917	VE-30000466	CF R	1/4W 1K J
	R918	VE-30000477	CF R	1/4W 100K J
	R919	VE-30000580	CF R	1/4W 22R J
	R920	VE-30000459	CF R	1/4W 100R J
	R921	VE-30000459	CF R	1/4W 100R J
	R922	VE-30000584	CF R	1/4W 220R G
	R923	VE-30000452	CF R	1/4W 10R J
	R924	VE-30000466	CF R	1/4W 1K J
	R925	VE-30000466	CF R	1/4W 1K J
	R926	VE-30000779	CF R	1/4W 68K J
	R927	VE-30000779	CF R	1/4W 68K J
	R928	VE-30000459	CF R	1/4W 100R J
	R929	VE-30000452	CF R	1/4W 10R J
	R930	VE-30000707	CF R	1/4W 47R G
⚠	R931	VE-30001194	MO R	2W 680R J
⚠	R932	VE-30001245	FUSE R	1/4W 0.47R J
	R933	VE-30021483	CC R	1W 2.2K K
	R934	VE-30000459	CF R	1/4W 100R J
	R938	VE-30000769	CF R	1/2W 680R J
	CAPACITOR			
	C900	VE-30000075	MKT CAP.	100NF 250V K (DC)
	C902	VE-30000415	EL CAP.	4.7UF 250V M
	C903	VE-30006841	MKP CAP.	1.2NF 1.6KV J
	C904	VE-30000330	CER CAP.	4.7NF 50V K B
	C905	VE-30000350	EL CAP.	10UF 250V M
	C906	VE-30000075	MKT CAP.	100NF 250V K (DC)
	C908	VE-30000074	MKT CAP.	100NF 63V J
	C909	VE-30000071	MKT CAP.	10NF 63V J
	C910	VE-30000090	MKT CAP.	22NF 100V J
	C911	VE-30000090	MKT CAP.	22NF 100V J
	C912	VE-30000075	MKT CAP.	100NF 250V K (DC)
	C913	VE-30000198	CER CAP.	120PF 500V J SL
	C914	VE-30000388	EL CAP.	33UF 160V M
	C915	VE-30000075	MKT CAP.	100NF 250V K (DC)
	C917	VE-30000295	CER CAP.	100NF 50V Z F
	C918	VE-30000352	EL CAP.	100UF 16V M
	C919	VE-30000205	CER CAP.	150PF 50V J SL
	C925	VE-30000191	CER CAP.	100PF 50V J SL
	C931	VE-30000075	MKT CAP.	100NF 250V K (DC)
	COIL			
	L901	VE-30001994	FIXED COIL	22UH J AXIAL
	L902	VE-30001990	FIXED COIL	6.8UH
	DIODE			
	D901	VE-30001318	DIODE	1A/800V 20A
	D902	VE-30001318	DIODE	1A/800V 20A
	D903	VE-30001318	DIODE	1A/800V 20A
	D904	VE-30001318	DIODE	1A/800V 20A
	D905	VE-30001284	DIODE	0.15A/100V 0.5A
	D906	VE-30001284	DIODE	0.15A/100V 0.5A
	D907	VE-30001284	DIODE	0.15A/100V 0.5A
	TRANSISTOR			
	Q900	VE-30001427	TRANSISTOR	
	Q901	VE-30001455	TRANSISTOR	
	Q902	VE-30017863	TRANSISTOR	
	Q903	VE-30017862	TRANSISTOR	
	Q904	VE-20056767	HE.ASSY	
	Q905	VE-20056768	HE.ASSY	
	IC			
	IC900	VE-30018768	I.C.	
	OTHERS			
⚠	PL900A	VE-30001855	CRT SOCKET	
	SG901	VE-30000428	SPARK GAP	300V
	SG902	VE-30000428	SPARK GAP	300V
	SG903	VE-30000428	SPARK GAP	300V
	SG904	VE-30000428	SPARK GAP	300V
	SG905	VE-30021532	SPARK GAP	1500V

SIDE CONTROL PW BOARD ASSY (VE-20124912)

⚠	Symbol No.	Part No.	Part Name	Description
	RESISTOR			
	R102	VE-30000594	CF R	1/4W 22K J
	R103	VE-30000712	CF R	1/4W 470R J
	R104	VE-30000594	CF R	1/4W 22K J
	R106	VE-30000712	CF R	1/4W 470R J
	R122	VE-30000770	CF R	1/4W 680R J
	R123	VE-30000712	CF R	1/4W 470R J
	R124	VE-30000623	CF R	1/4W 270R G
	R125	VE-30000526	CF R	1/4W 1.5K J
	R126	VE-30000689	CF R	1/4W 3.9K J
	R127	VE-30000702	CF R	1/4W 430R J
	R128	VE-30000702	CF R	1/4W 430R J
	CAPACITOR			
	C101	VE-30000190	CER CAP.	100PF 50V J CH
	C103	VE-30000190	CER CAP.	100PF 50V J CH
	C104	VE-30000190	CER CAP.	100PF 50V J CH
	C107	VE-30000190	CER CAP.	100PF 50V J CH
	COIL			
	L101	VE-30001979	FIXED COIL	1UH
	OTHERS			
	JK101	VE-30001884	RCA JACK	
	JK102	VE-30001882	RCA JACK	
	JK103	VE-30001883	RCA JACK	
	JK109	VE-30020016	HEADPHONE JACK	
	SW101	VE-30002181	TACT SWITCH	TSW_VER.
	SW102	VE-30002181	TACT SWITCH	TSW_VER.
	SW103	VE-30002181	TACT SWITCH	TSW_VER.
	SW104	VE-30002181	TACT SWITCH	TSW_VER.
	SW105	VE-30002181	TACT SWITCH	TSW_VER.

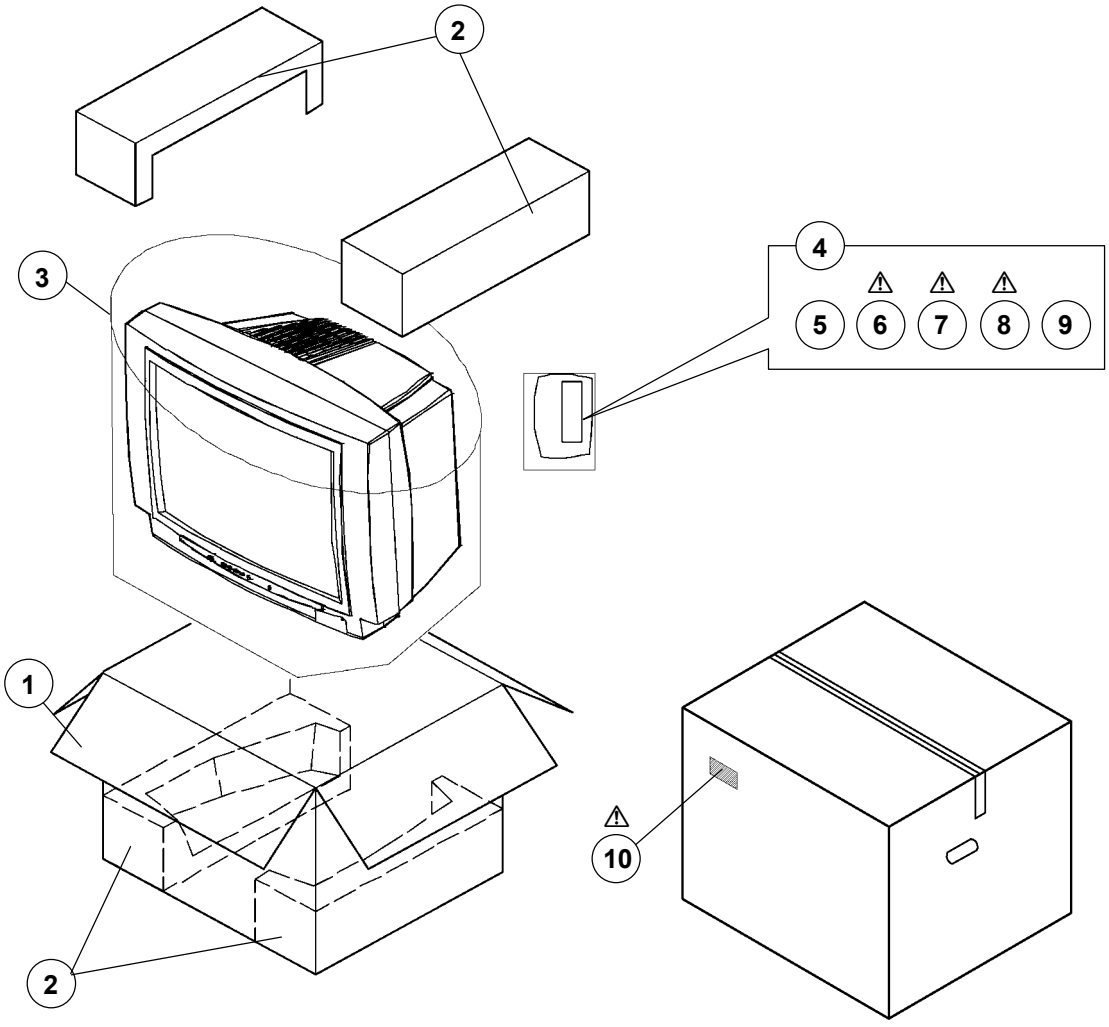
LED PW BOARD ASSY (VE-20125685)

⚠	Symbol No.	Part No.	Part Name	Description
	DIODE			
	D100	VE-30001279	LED(RED/GREEN)	
	D100	VE-20119034	LED HOLDER	
	OTHERS			
	MD101	VE-30001670	PREAMPLIFIER	

SWITCH PW BOARD ASSY (VE-20122229)

⚠	Symbol No.	Part No.	Part Name	Description
	OTHERS			
⚠	F801	VE-30001731	FUSE	2.5A
⚠	SW800	VE-30022450	SWITCH(ON/OFF)	

PACKING



PACKING PARTS LIST

⚠	Ref.No.	Part No.	Part Name	Description
			[AV-28GH1BUF : BLACK model]	
	1	VE-50038983	CARTON BOX	
	2	VE-20116672	SNOW BOX ASSY	4 pcs in 1 set
	3	VE-50026637	POLY BAG (1250*1000)	
	4	VE-70000587	POLY BAG	
	5	VE-30021286	REMOTE CONTROL UNIT	(RM-C1512B)
⚠	6	VE-50038966	INST BOOK	[EN/GE/FR/IT/SP/DU/POR]
⚠	7	VE-50038967	INST BOOK	[SW/NO/DA/FIN]
⚠	8	VE-50039218	INST BOOK	[CZ/POL/HUN/BUL]
	9	BT-54013-2TK	WARRANTY CARD	
⚠	10	VE-20127952	LABEL	
			[AV-28GH1SUF : SILVER model]	
	1	VE-50038987	CARTON BOX	
	2	VE-20116672	SNOW BOX ASSY	4 pcs in 1 set
	3	VE-50026637	POLY BAG (1250*1000)	
	4	VE-70000587	POLY BAG	
	5	VE-30021287	REMOTE CONTROL UNIT	(RM-C1512S)
⚠	6	VE-50038966	INST BOOK	[EN/GE/FR/IT/SP/DU/POR]
⚠	7	VE-50038967	INST BOOK	[SW/NO/DA/FIN]
⚠	8	VE-50039218	INST BOOK	[CZ/POL/HUN/BUL]
	9	BT-54013-2TK	WARRANTY CARD	
⚠	10	VE-20127958	LABEL	